

ARCHAEOLOGICAL INVESTIGATIONS IN  
THE MAURICE RIVER TIDEWATER AREA  
NEW JERSEY

CENTRE FOR NEWFOUNDLAND STUDIES

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ARCHAEOLOGICAL INVESTIGATIONS IN  
THE MAURICE RIVER TIDEWATER AREA  
NEW JERSEY

by



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### ABSTRACT

This thesis concerns a prehistoric cultural sequence in the Maurice River tidewater area, New Jersey, as revealed by recent archaeological excavations on three small sites, coupled with data from previously investigated sites and surface collections. Excavation was restricted to single, closed components and distinctly stratified sites so that discrete, culturally significant assemblages could be isolated and defined. Data relating to subsistence patterns and ecological adaptation were collected where possible. The composite sequence was ordered within a chronological framework which was established by relative and absolute dating techniques.

This study documents the lengthy and more or less continuous occupation of the lower Maurice River area beginning no later than Late Archaic times and terminating in the historic era. Our investigations demonstrate the presence of several Late Archaic Susquehanna tradition phases, the earliest of which was dated by means of radiocarbon analysis to c.1900 B.C. In addition two new complexes have been defined, viz., the Cadwalader complex and the Fralinger complex. The Cadwalader complex, probably first appearing about 750 B.C., relates to an Early Woodland group whose vestiges include broad side-notched projectile points, crude flat-bottom ceramic vessels, a variety of bone, antler, and shell tools, and large refuse deposits suggesting a well balanced hunting

and gathering economy. On the Late Woodland time level, the Fralinger complex comprises small triangular points, plain, fabric-impressed, and cord-marked conoidal pottery, ceramic smoking pipes, and a few associated historic artifacts.

Paleo-Indian, Early to Middle Archaic, and Middle Woodland manifestations are rather dimly perceived, being represented by a scattering of distinctive and presumably diagnostic artifacts. Accepting this inferential data, the advent of human occupancy in this area is pushed back several millenia. The proposed sequence is essentially complete and consonant with the current understanding of prehistory in the rest of the Northeast.

This research has answered some of the long-standing problems of southern New Jersey archaeology and has also given rise to many others which still await elucidation.

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## BACKGROUND

### History of Archaeological Studies in New Jersey

The object of this brief review is to familiarize the reader with some of the salient events in the long and often complex history of archaeological inquiry in New Jersey. Since Cross (1941:1-3; 1956:1-10) has already recorded in some detail considerable information relating to the earlier archaeological researches in this state, the following discussion is presented in capsule form.

The earliest recorded archaeological studies in New Jersey were concerned with the questions of "paleolithic man" and the "argillite culture" at the Abbott Farm, near Trenton. As a result of these researches and the bitter, long-lived controversy that followed, New Jersey became the cynosure of early archaeological investigation in the eastern United States.

As early as 1872 Charles C. Abbott adumbrated the possibility of identifying "glacial man" in the New World on the basis of crude argillite artifacts from his farm along the Delaware River (Abbott 1872). From time to time Abbott revised his thinking but all the while adhered to his theory of the early origin of the crude implements. By 1883 he had developed a sequence of three more or less distinct cultures at the Abbott Farm; viz., the "paleolithic" culture, the "argillite culture", and the modern Indian culture (Abbott 1883). The "paleolithic" culture was characterized by crude chipped stone artifacts which were presumed to be of glacial

age as judged from their discovery in the Trenton outwash gravels. The "argillite culture", deemed to be intermediate in content and age between "paleolithic man" and the historic Lenape, was marked by the presence of roughly formed argillite spear points. Finely chipped flint projectile points and pottery were considered the cultural diagnostics of the modern Indians. Each "culture" was attributed to a different level within the site, but, were, in fact, later shown to represent parts of a mixed assemblage.

The concept of "paleolithic man" came under critical professional review, and became the focal point of a heated and protracted controversy (Cf. Mounier 1972a). After an initial phase of acceptance, Abbott's scheme was repudiated by most professional geologists and anthropologists, including William Henry Holmes, John Wesley Powell, Henry Mercer, W.J. McGee, and Ales Hrdlicka. By the end of the 19th century the question of man in the glacial era at Trenton had all but been laid to rest.

The question of the "argillite culture" was another matter entirely. For the most part the discussion centered around the investigations of Ernest Volk (1911) who excavated on the Lalor Farm near Trenton from 1889 to 1910. The crucial point was the age of the relic-bearing "yellow sand". This problem was an unsettled issue from the turn of the century well into the 1930's (Richards 1939). The validity of the "argillite culture" as a distinct cultural entity was subsequently reviewed by Skinner and Spier at the Abbott

Farm in 1914 (Spier 1918) and by Hawkes and Linton (1916) at the Crispin Farm near Medford, Burlington County. These investigators generally concurred that a pre-Lenape--but not necessarily pre-Indian--culture was present. Nevertheless, the problem was not resolved to everyone's satisfaction and the question was re-opened in the Indian Site Survey research of the 30's and 40's.

Apart from the issues of "paleolithic man" and the "argillite culture", early research in New Jersey archaeology was devoted to site surveys, aimed at creating artifact typologies and listing site distributions. New Jersey's first state-wide archaeological survey was authorized by the Legislature in April of 1912 and field work commenced later that year under the direction of Alanson B. Skinner, aided by Leslie Spier and Max Schrabisch. About one thousand sites were located and recorded that first year.

During 1913 the survey continued under the supervision of Schrabisch and Spier (Schrabisch 1915; Spier 1915). Schrabisch's efforts were concentrated in the northwestern extremity of the state in Sussex County while Spier visited sites along the drainages of the Raritan River in Union County, the Maurice River in Cumberland County and various tributaries of the Delaware in Salem and Gloucester Counties.

Official support of New Jersey archaeology then lapsed until mid-1931 when Dorothy Cross excavated two rockshelters in Sussex County with financial backing from the New Jersey State Museum and the University of Pennsylvania.

Archaeological interests again lay dormant until 1936 when, to meet the exigencies of the Depression era, large work forces were mobilized to form the Indian Site Survey. The work of the Indian Site Survey, operating as a project of the Work Projects Administration (WPA), continued for nearly five years under the supervision of Dorothy Cross, Allan H. Smith, and Nathaniel Knowles, in consecutive terms. Many sites were recorded in all parts of the state and about forty were excavated between 1936 and 1941, including the Abbott Farm and two sites in the Maurice River drainage of relevance to the current report.

The object of the Indian Site Survey, it seems, was primarily to provide work for the unemployed, and secondarily to investigate problems of archaeological interest. As with the earlier survey the Indian Site Survey sought to establish a firm typological schedule that would allow "comparative study... of artifacts or a determination of the change and interrelation of cultures" (Cross 1941:3). The question of a pre-Lenape horizon was revived, but that such a horizon did not exist seemed almost a foregone conclusion. The final report of the excavations (Cross 1941) showed that, apart from creating a neater typology, the state of the discipline had advanced little over earlier times.

During the war years and the recovery period New Jersey archaeology was fallow ground. With the folding of the Indian Site Survey, the State of New Jersey had all but



gone out of the business of doing field archaeology. Henceforth, all investigations of any magnitude or duration were to be supported by individuals, private foundations or the federal government.

It was not until the late 1940's that the Delaware Project, sponsored by the Indiana Historical Society, with the financial backing of Eli Lilly, was to breathe new life into New Jersey studies. The Delaware Project was created for the purposes of identifying the historic villages of the Delaware and to test the validity of the Walam Olam, the pictographic history of the Lenape. From 1947 to 1949 the Delaware Project employed an imposing list of prominent professional archaeologists, including William A. Ritchie, Catherine McCann, John Witthoft, and Richard S. MacNeish.

Ritchie excavated the famous Bell-Philhower site in Sussex County (Ritchie 1949). Witthoft and MacNeish labored at the Overpeck site in Bucks County, Pennsylvania, while McCann (1950;1957) concentrated on sites in central and southern New Jersey. The project was valuable in airing new data but failed to produce concrete substantiation of the Walam Olam or to locate unequivocal historic Lenape occupations.

The 1950's produced few professional studies, mostly single site investigations (Gruber and Mason 1956; Mason 1957). Of course the final report of the Abbott Farm excavations was released in 1956 (Cross 1956) but the value of this publication in building a regional cultural sequence and chronology was diminished by poor excavation techniques

and by the mixed and confusing assemblages at this spectacular site. At this time the burden of archaeological inquiry was borne by the Archaeological Society of New Jersey and more particularly by a few dedicated non-professional archaeologists of whom Charles F. Kier, Jr. is perhaps the most paradigmatic. Kier's nearly single-handed labors at the Raccoon Point site in Gloucester County continued for several years until the site was finally destroyed by the creation of a huge dike along the Delaware River. The report that followed, (Kier and Calverly 1957) while now dated in some respects, still ranks among the most comprehensive and discerning contributions to our present understanding of New Jersey prehistory.

Beyond the confines of the state boundaries numerous noteworthy contributions continued to be made. Outstanding is Ritchie's impressive series of publications which provides the framework for ordering archaeological data in the whole of the Northeast and serves also as a counterpoise to the virtual dearth of published material elsewhere (Ritchie 1938; 1944; 1949; 1955; 1959; 1961; 1965; 1969).

Other contributions to the emerging literature of the Northeast and Middle Atlantic region are the writings of Smith (1950) and Witthoft (1952; 1953).

From the 60's on and with the rapid acceleration of "urban sprawl" and other pernicious aspects of "progress," archaeology in New Jersey and adjacent areas experienced a re-awakening of professional interest, ofttime aimed at

salvaging data from threatened sites. In some cases the methodologies employed proved to be even more threatening than "progress" itself (Cf. Sleshberg 1964), but for the most part the work was of some value for isolating regional complexes and expanding the content and distributions of better known manifestations, such as the "Transitional" cultures (Kraft 1970; 1972; Kinsey 1972). Recent studies of Early and Middle Archaic cultures (Coe 1964; Broyles 1966; 1971; Dincauze 1971; Ritchie and Funk 1971) are of more than passing interest since they suggest the potential of the Middle Atlantic region for the elucidation of some long-standing problems in Northeastern prehistory as discussed in greater detail anon.

Having briefly recapitulated the history of archaeological research in New Jersey it remains now to evaluate some of the theoretical and methodological implications of the prior research and to relate them to the present thesis.

#### Research Goals and Methods

From the foregoing discussion it should be clear that the earlier researchers labored under a number of methodological handicaps. Primary among these was the explicit belief that the creation of a tight artifact typology would elucidate "determination of change and interrelation of cultures" (Cross 1941:3). To further compound confusion it seems that generally only the more spectacular or productive sites were selected for excavation, regardless of the fact that they were, in the main, large unstratified, multi-

component stations. The conclusion that "the aboriginal culture in most of New Jersey was homogeneous..." is therefore not very surprising.

The principal shortcoming of the early investigations was the failure to divide the excavated cultural remains into discrete, manageable units. Moreover the undue emphasis on typology obscured the importance of ecological and functional considerations and, coupled with the mixed nature of the sites, complicated the creation of a useful relative chronology.

Overcoming these three major failings was the object of this study of Maurice River prehistory. While the Maurice River tidewater area has yielded evidence of repeated occupations throughout the long span of prehistory and into the modern era, such evidence has usually been found mixed in the ground or as scattered surface finds. It was therefore hoped that excavation of several carefully selected sites would provide the data necessary to define, for the first time, some of the culturally significant assemblages in the area as well as to establish a tight chronological framework to order the resulting sequence. Also, it was hoped that some information could be gathered regarding aboriginal patterns of ecological adaptation and exploitation.

In order to meet these goals it was decided that only small, unmixed, and single-component or clearly stratified sites should be excavated, for as Witthoft (1959:79) relates:

The greatest need of eastern archaeology is more stratigraphic work... Site situations involving superposition rather than actual stratigraphy are adequate only to outline trends through-

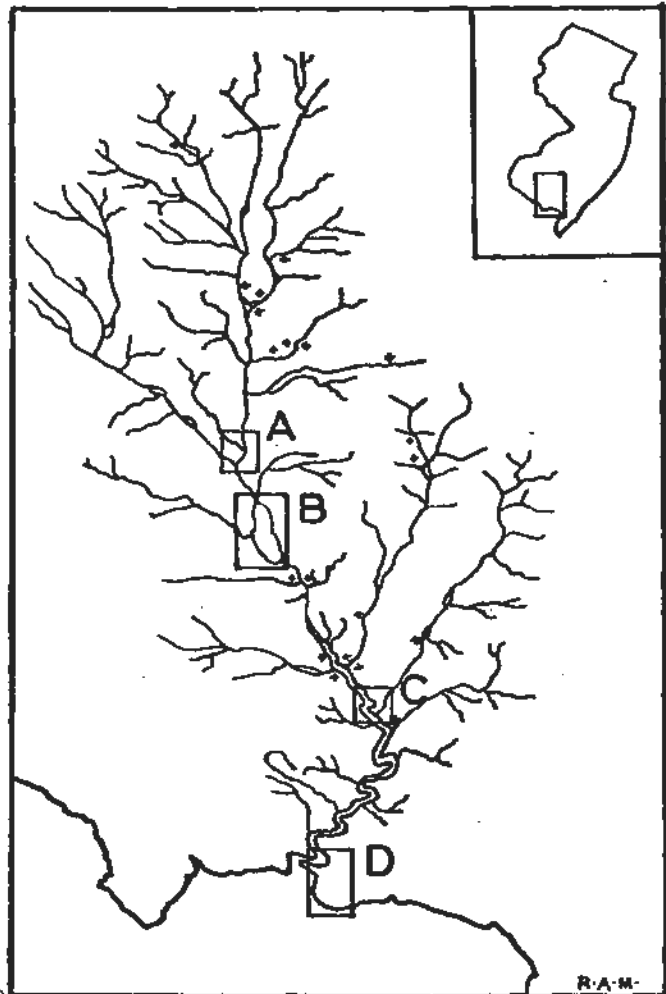
out a major sequence, rather than to define actual steps and stages. Sites with deep and highly differentiated stratigraphy...are of such basic importance that locating and studying them should take precedence over any other approach....

This oft-stated ideal is rarely pursued and seldom realized. Thus, for this study three small, relatively uncomplicated sites- the Fralinger, Cadwalader, and Cadwalader Annex sites- were chosen for examination. As expected, these sites proved to be unproductive in quantitative terms, but each was fruitful in providing information on only one or two discretely segregated components. From them was secured information regarding ecological adaptation in ages past and the means of achieving a partially radiocarbon-based chronology.

The materials previously excavated by the Indian Site Survey from two other Maurice River sites - Indian Head and East Point - were examined for comparative purposes as were numerous private collections from the area, including material from four now inundated sites at Union Lake (Mounier 1972).

A brief review of the natural setting and history of early settlement of the Maurice River tidewater area is included to provide some background for the site descriptions and excavation reports. Each site report will be structured according to the following outline: introduction (including notes on location, setting, and discovery), stratigraphy and cultural content, features, artifacts, floral or faunal remains, and interpretations.

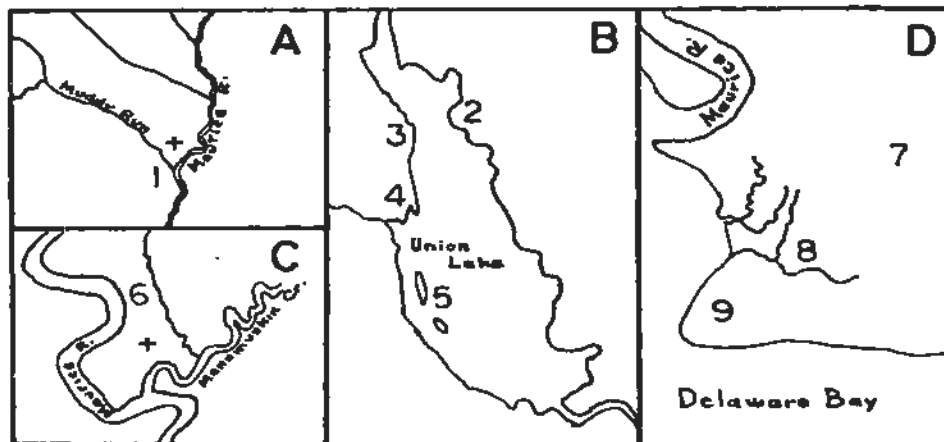




# PREHISTORIC SITES IN THE MAURICE RIVER DRAINAGE

## LEGEND

- 1. INDIAN HEAD
- 2-5. UNION LAKE SITES
- 6. FRALINGER
- 7. CADWALADER ANNEX
- 8. CADWALADER
- 9. EAST POINT
- + . OTHER KNOWN SITES



Analysis of the artifacts is presented in standard style, with descriptions of form, size, manufacturing techniques, and material as well as information regarding the formal attributes within each of these categories. Comments regarding comparative material, distribution, and cultural/chronological significance are also included.

The excavation techniques, which were essentially the same at all sites, are described here to avoid redundancy in the text. After the sites had been tested and delimited, a grid of five-foot squares was laid out by means of wooden stakes in the area to be excavated. The work then proceeded by troweling individually through each stratum in horizontal steps about a foot wide, maintaining a clean vertical face (Plate 21). The provenience of all artifacts was recorded by co-ordinates with respect to distance and direction from the datum stake and position within the stratigraphic column. Soil samples were collected from each stratum and carbon samples were saved where possible for future C-14 analysis.

The effort was made to search for deeply buried components at each site, but despite intensive investigation, this endeavor was fraught with difficulties and was met with negative results. At the Fralinger site several small shafts were sunk to an overall depth of about eight feet. This practice was discontinued after the collapse of the infirm sand walls engendered the fear of imminent entombment. The high water table at the Cadwalader Annex site rendered deep testing futile. Both here and at the Cadwalader site the unproductive search for deposits buried deeper than the excavation floor was confined to the deep drainage ditches which

transect the surrounding meadows.

Proponents of the "suffer ethic" - - those who contend that to make a contribution in archaeology one must travel to the far corners of the globe, face the threat of political upheaval or the ravages of exotic disease, or endure some other hideous and indescribable torment - will take some small pleasure to learn that all the excavations and backfilling were done manually, for the most part by the author. It is greatly hoped that this modest concession will compensate for the convenience of living and working in a temperate climate with adequate provision for comfortable housing, transportation, and sanitary and medical necessities.

The cultural material amassed in this research will be subdivided into components, phases, complexes, and traditions as these terms are currently understood (Willey and Phillips 1958:21-48; Ritchie 1965:xvi; Kinsey 1972:xxv). A component is simply the manifestation of a single culture at a site. A phase is the geographically and temporally restricted expression of a cultural group, represented by a recurring array of traits sufficiently characteristic to distinguish it from all other such units. The term "complex" refers to a constellation of traits, recurring in time and space, and possibly embracing two or more phases which may not be sufficiently delineated to be so designated. Finally a tradition can be defined as a custom or concept, whether technological or social, with persistence through time, while a culture can be taken to mean "a particular strain of social heredity of a group of individuals larger than that represented by the phase, and united by the sharing of a common tradition or

traditions" (Ritchie 1965:xvi).

In recognition of Dincauze's (1968:71) valid criticisms of the cultural stage concept, cultural units above the phase level will be grouped, insofar as possible, into traditions, and the terms "Paleo-Indian," "Archaic," and "Woodland" retained herein as convenient labels for culture types in anticipation of the formal definition of such types for the Northeast. In this way it is hoped to avoid the evolutionary implications and processual blurring inherent in the stage concept and still preserve familiar terms of reference for these larger cultural classifications.

### ECOLOGICAL SETTING

The Maurice River tidewater area occupies the southern edge of the coastal plain in New Jersey, which forms part of a larger ecological zone encompassing the Atlantic slope of the Middle Atlantic States as a whole. This zone corresponds to what Stephenson and Ferguson (1963:200-05) have called the Middle Atlantic Culture Province, which as an archaeological culture area reflects the delicate ecological adjustment of the included native cultures.

The entire region is characterized by tidal marshes which were formed at a time when the water level was lower than present and the valleys were more deeply eroded. A subsequent differential rise in sea level (Shepard, 1964; Milliman and Emery 1968) has resulted in the flooding of the troughs. Thus, the area is typified by drowned river valleys, large bays, and swamps. Most of the streams are tidal for a great distance from their mouths.

The Maurice River is one of the most important tidewater streams in southern New Jersey. It originates near Glassboro, in Gloucester County and flows southward for approximately 33 miles to its confluence with the Delaware Bay. The river drains a total area of 386 square miles of which 168 square miles drain directly into tidal waters. The head of tidewater is about 24 miles north of the Delaware Bay, following the river. The tidal intrusion is halted by the dam at Union Lake which now occupies the headwaters of the original tidal basin (Vermeule 1894:268-69).

The topography of the Maurice River area can be described as flat to gently undulating, with the greatest relief displayed along the middle reaches of the river. The elevation ranges from sea level to a maximum of 141 feet. The general slope is southerly, toward the Delaware Bay (Engle, et.al. 1921:5).

The soils of various series derive from unconsolidated beds, mainly of marine origin. The dominant soil series of the area is the "Sassafras Sand" which is typified by its "brown, yellowish-brown, or light brown surface soils and reddish-yellow or orange-colored subsoil" (Ibid:24).

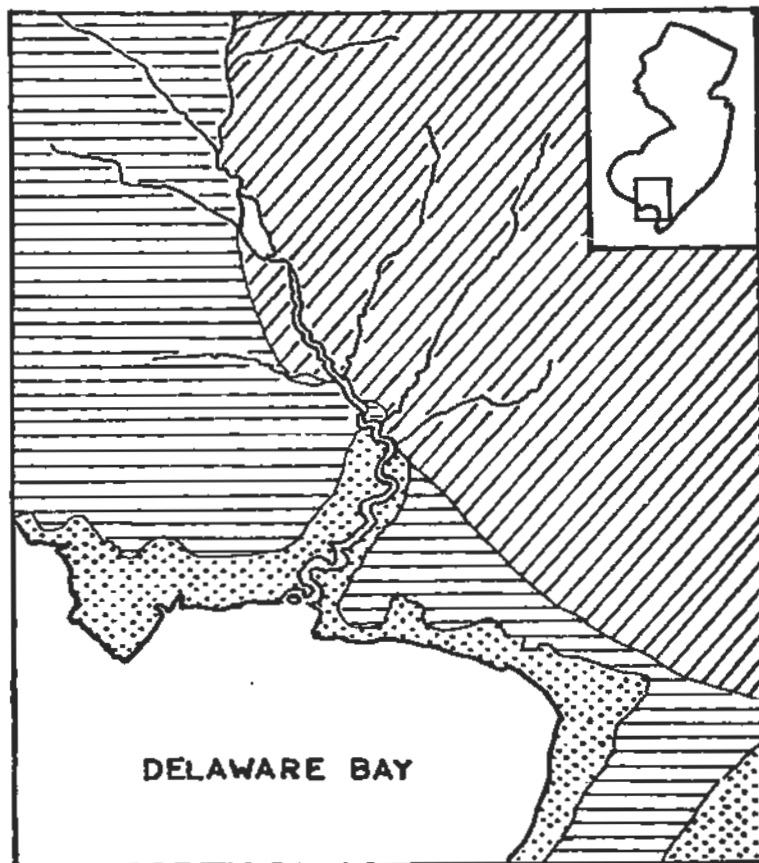
The pertinent geological formations comprise the Kirkwood, Cretaceous, Cohansey, and Cape May formations. The Kirkwood and Cretaceous, the oldest deposits in the area, are completely buried locally by the Cohansey formation which is marked by coarse sand and localized beds of gravel, the last of which is composed of quartz, chert, and quartzose-sandstone pebbles, ranging in size from one quarter inch to one and one-half inches in diameter. The quaternary Cape May formation is the most recent in the area and outcrops along the middle and lower Maurice River valley (Salisbury and Knapp 1917:3). The constituents of the Cape May deposit were derived from older formations and were laid down under varying degrees of submergence in bays or estuaries (Engle, et. al. 1921:24). This submergence is attested to by the fossil shell bed on the Fralinger tract near Port Elizabeth. This unusual bed of fossil oyster and clam shells has long been known to geologists as a natural deposit of Pleistocene age (Cape May

formation) dating from the last interglacial stage (Cook 1868:303-04; Richards 1933:190). Unfortunately, the local residents and relic hunters regard the shell bed as an Indian midden; their probings, combined with extensive bank erosion, have practically eradicated all trace of this interesting and peculiar feature.

The present climate in the Maurice River tidewater area is rather temperate. Annual precipitation, according to U.S. Weather Bureau figures (Weeks 1952), amounts to just over 43 inches, with about three and one-half inches falling each month. The average annual temperature is 57.3°F. The winter low averages about 36.3°F for January while the summer high is an average of 79.4°F for the month of July.

The temperate climate is reflected in the existing flora and fauna which are representative of the Carolinian biotic province (Stone 1911:41; 1908). The faunal list has probably not changed a great deal in the last few centuries except for the regional extinction of such species as bear, sturgeon, and wild turkey. Presently the interior is forested with various deciduous and evergreen trees which reflect a history of frequent and extensive forest fires. In late prehistoric times, the forest cover was most likely not much different from the present, except that it must have been considerably denser in times past.

Stone (1911:57) divides the New Jersey coastal plain into five floral districts, three of which are pertinent to this study; viz., the Pine Barrens, the Middle District, and the Maritime District (See Map 2). The Maurice River divides Southern New Jersey into two nearly equal segments and forms



# FLORAL DISTRICTS OF THE MAURICE RIVER TIDEWATER AREA

## LEGEND



PINE BARRENS



MIDDLE DISTRICT



MARITIME MARSHES





the zonal interface between the Pine Barrens and the Middle District.

The northern edge of the Pine Barrens is in approximately  $40^{\circ} 15'$  N latitude; the southern edge is found at  $39^{\circ} 10'$  N latitude. The extreme western border is at the Maurice River at  $75^{\circ} 5'$  W longitude, while the eastern margin is approximately defined by the salt marshes bordering the inter-coastal bays on the Atlantic shore. The region measures about 75 miles from the northeast to southwest and about 35 miles from east to west (Harshberger 1916:8). The flora of the Pine Barrens is characterized by mixed pines and scrub oak (Stone 1911:68; see Table 1).

The Middle District lies north and west of the Pine Barrens, reaching around the bay shore to the center of the Cape May peninsula. The Middle District is a region of deciduous forest, producing a variety of hardwoods and fruit and nut trees (Stone 1911: 80-82; see Table 1). The boundary of the Middle District with the Pine Barrens is neither straight nor distinct; narrow tongues of the two flora interlace and often both elements will be found along the borderline.

Moreover, peculiar coastal flora runs up the tidewater streams to the limit of coastal intrusion. The freshwater streams in the area are lined with cedar swamps which possess a flora quite different from either the Pine Barrens or the Middle District. The common trees of these swamps are white cedar, magnolia, maple, and gum (Stone 1911: 70; see Table 1).

The Maritime flora are limited to the salt meadows and comprise three low, even grasses: salt meadow grass (Spartina patens), marsh spike grass (Distichlis spicata), and black

-TABLE 1-

THE FLORA OF SOUTHERN NEW JERSEY  
(Cf. Stone 1911)

PINE BARRENS FLORA

<u>Common Name</u>	<u>Scientific Name</u>
White birch	<u>Betula alba</u>
Sassafras	<u>Sassafras sassafras</u>
Sour Gum	<u>Nyssa sylvatica</u>
Chestnut oak	<u>Quercus prinus</u>
	<u>Q. ilicifolia</u>
Scrub oak	<u>Q. marylandica</u>
	<u>Q. prinoides</u>
White oak	<u>Q. alba (rare)</u>
Black oak	<u>Q. velutina</u>
Post oak	<u>Q. stellata</u>
Pitch pine	<u>Pinus rigida</u>
Yellow pine	<u>P. echinata</u>

MIDDLE DISTRICT FLORA

<u>Common Name</u>	<u>Scientific Name</u>
Willow oak	<u>Quercus phellos</u>
Pin oak	<u>Q. palustris</u>
Spanish oak	<u>Q. triloba</u>
Sweet gum	<u>Liquidambar styraciflua</u>
Tulip	<u>Liriodendron tulipifera</u>
Beech	<u>Fagus grandifolia</u>
Hornbeam	<u>Carpinus caroliniana</u>
Flowering dogwood	<u>Cornus florida</u>
River birch	<u>Betula nigra</u>
Sour gum	<u>Nyssa sylvatica</u>
Mocker nut hickory	<u>Carya alba</u>
Pig-nut hickory	<u>C. glabra</u>
Wild cherry	<u>Prunus serotina</u>
Persimmon	<u>Discopyros virginiana</u>
Holly	<u>Ilex opaca</u>
Wild boneysuckle	<u>Azalea nudiflora</u>

CEDAR SWAMP FLORA

<u>Common Name</u>	<u>Scientific Name</u>
White cedar	<u>Chamaecyparis thyoides</u>
Swamp magnolia	<u>Magnolia virginiana</u>
Carolina red maple	<u>Acer rubrum carolinianum</u>
Sour gum	<u>Nyssa sylvatica</u>
Alder	<u>Alnus rugosa</u>
Poison sumac	<u>Rhus vernix</u>
Blueberry	<u>Vaccinium sp.</u>
Sedges	<u>Carex sp.</u>

grass (Juncus gerardi) (Stone 1911:96).

The Maurice River tidewater area yields a wide variety of comestible fauna which are to be found variously distributed in the three floral districts just described. In the following discussion the most important mammals, fish and fowl will be mentioned briefly and lists of the typical examples in each category presented in Table 2.

That the Delaware Bay region presented a broad spectrum of potential subsistence commodities is clear from the 1634 account of Cape May by Robert Evelyn:

I saw there an infinite quantity of bustards, swans, geese and fowl, covering the shores, as within the like multitude of pigeons and store of turkeys, of which I tried one to weigh forty and six pounds. There is much variety and plenty of delicate fresh and sea fish and shellfish, and whales and grampus, elks, deere that bring three young at a time. (Quoted in Stevens 1897:24).

The most important mammal as an aboriginal food source was unquestionably the white-tail deer. Also of doubtless importance were elk, black bear, raccoon, beaver, muskrat, and opossum. Many of these once plentiful mammals have been extirpated or greatly reduced throughout much of their former range owing to overhunting and habitat destruction. For instance, both the elk and bison which once occurred in New Jersey are now extinct, (Stone 1908:55), and the black bear is nearly so. The last reported sighting of a bear in southern New Jersey was in the Blackwater swamp in Vineland in 1902 (Stone 1908:107). Of some interest was the discovery near Bridgeton, New Jersey some years ago of a small stemmed point found deeply embedded in the humeral epiphysis of a modern bison, thus illustrating not only the presence of bison in the

East but also the fact of their pursuit by aboriginal hunters (Kier 1954).

Maritime mammals, including whales and seals, once occurred in some numbers in the waters of the Delaware Bay and have been sporadically recorded well into the 19th century (Stone 1908:42, 99). The remains of whales were found during the Indian Site Survey excavations at the Salisbury and Abbott Farm sites (Cross 1941:60-61). Whether whales were actively pursued by aboriginal man in this area is unknown, but it is entirely possible that an accidentally beached whale could have been butchered and eaten. The presence of these creatures in the Delaware Bay, of course, was one reason for the early European settlement of the area (see p. 25).

The forest and meadows undoubtedly produced various fowl in profusion. The wooded tracts must have harbored wild turkey and grouse while the river and the salt marshes bordering the bay were and remain to this day inviting to a wide variety of waterfowl as feeding stations and staging areas for migrations along the Atlantic Flyway. The more common waterfowl today include Canada goose, the snow goose, brant, mallards, and black ducks among others. Raptorial birds including the bald eagle, osprey, and marsh hawks were once common although their numbers are now so vastly reduced that most of them seem doomed to extinction.

Reptiles of various kinds and fish - especially anadromous species such as sturgeon and shad - were numerous and must have been of considerable importance to the aboriginal fisherman (Fowler 1908; see Table 2) as of course were shellfish.

According to John DuBois of the New Jersey Division of

-TABLE 2-

THE FAUNA OF SOUTHERN NEW JERSEY

\* denotes extinct or threatened species.

+ archaeologically present in the lower  
Maurice River drainage.MAMMALS

<u>Common Name</u>	<u>Scientific Name</u>
Virginia opossum	<u>Didelphis virginiana</u>
*Right whale	<u>Balaena glacialis</u>
*Fin-backed whale	<u>Baleanoptera physalus</u>
Bottle-nose dolphin	<u>Tursiops truncatus</u>
+Virginia deer	<u>Odocoileus virginianus</u>
*Elk	<u>Cervus canadensis</u>
*Bison	<u>Bison bison</u>
Cottontail rabbit	<u>Sylvilagus floridanus</u>
Muskrat	<u>Fiber zibethicus</u>
+*Beaver	<u>Castor canadensis</u> ( <u>Castor fiber</u> )
*Fox squirrel	<u>Sciurus niger</u>
Gray squirrel	<u>S. carolinensis</u>
*Harbor seal	<u>Phoca vitulina</u>
*Harp seal	<u>P. groenlandica</u>
Carolina otter	<u>Lutra canadensis</u>
+Eastern skunk	<u>Mephitis mephitis</u>
Raccoon	<u>Procyon lotor</u>
*Black bear	<u>Ursus americanus</u>
Red fox	<u>Vulpes fulva</u>
+Gray fox	<u>Urocyon cinereoargenteus</u>
+Domestic dog	<u>Canis familiaris</u>
*Cougar	<u>Felis couguar</u>
*Wild cat	<u>Lynx ruffus</u>

BIRDS

<u>Common Name</u>	<u>Scientific Name</u>
Canada goose	<u>Branta canadensis</u>
Snow goose	<u>Chen hyperborea</u>
American brant	<u>Branta hutchinsii</u>
Mallard	<u>Anas platyrhynchos</u>
Black duck	<u>A. rubripes</u>
Redhead duck	<u>Nyroca americana</u>
Canvasback duck	<u>N. valisineria</u>
*Wild turkey	<u>Meleagris gallopavo</u>
*Bald eagle	<u>Haliaeetus leucocephalus</u>
Osprey	<u>Pandion haliaetus</u>
Marsh hawk	<u>Circus cyaneus</u>
Red-tailed hawk	<u>Buteo jamaicensis</u>
*Passenger pigeon	<u>Ectopistes migratorius</u>
Mourning dove	<u>Zenaidura macroura</u>

-TABLE 2-  
(Cont'd.)

FISHES

<u>Common Name</u>	<u>Scientific Name</u>
*Common sturgeon	<u>Acipenser sturio</u>
*Short-nosed sturgeon	<u>A. brevirostrum</u>
Hickory shad	<u>Pomolobus mediocris</u>
Alewife	<u>P. pseudoharengus</u>
Black-bellied herring	<u>P. aestivalis</u>
Shad	<u>Alosa sapidissima</u>
Mossbunker	<u>Brevoortia tyrannus</u>
*Salmon	<u>Salmo salar</u>
Eel	<u>Anguilla chrysops</u>
Catfish	<u>Ameiurus sp.</u>
Ditch pike	<u>Esox americanus</u>
Pickereel	<u>E. reticulatus</u>
Calico bass	<u>Pomoxis sparoides</u>
Sunfish	<u>Enneacanthus sp.</u>
Large mouth bass	<u>Micropterus salmoides</u>
Yellow perch	<u>Perca flavescens</u>
White perch	<u>Morone americana</u>
Weak fish	<u>Cynoscion regalis</u>
Drum fish	<u>Pogonias cromis</u>

REPTILES

<u>Common Name</u>	<u>Scientific Name</u>
Snapping turtle	<u>Chelydra serpentina</u>
+Box tortoise	<u>Terrepenne carolina</u>
+Northern diamond-back terrapin	<u>Malaclemys terrapin</u>
+Common mud turtle	<u>Kinosternon subrubrum</u>

Fish, Game and Shell Fisheries, modern mollusc distribution in the Delaware Bay and Maurice River is governed by the relative salinity of the water. Oysters require comparatively fresh water while clams favor more saline solutions. Today oysters occur in the central bay and up the Maurice River for a maximum distance of seven and one half miles from the mouth at East Point. Both hard- and soft shell clams are absent from the Maurice River cove. They are found instead along the Cape May bay shore about ten to twelve miles east of East Point. Hard- and soft shell clams occupy the same general area, varying locally because of differences in the bottom (DuBois, conversation).

In light of the foregoing discussion then it is not at all surprising to find evidence of more or less continuous aboriginal occupation of the Maurice River tidewater area, beginning at an early, though as yet undetermined period. Beyond cavil, the features that favored Indian habitation - the varied abundant food resources, the well-drained soil, and the temperate climate - also attracted European settlers as reviewed below.

### EARLY COLONIAL HISTORY

The early European exploration of the New Jersey coast began in the early decades of the 16th century. Verrazano, sailing in 1524, was the first recorded European visitor, followed some years later by Henry Hudson (1609). Cornelius Jacobsen Mey explored the lower Delaware River and named Cape May in 1614, but it was nearly twenty years later that any effort was made to settle the area (Wilson et.al.1950:8-9).

In the 1630's the Dutch planned to colonize the Delaware Bay shore for the purposes of planting tobacco and grain and to establish a whale and seal fishery. David Pieterse de Vries said: "March 29, 1633 - found that our people have caught seven whales; we could have done more if we had good harpoons, for they struck seventeen fish and only saved seven" (quoted in Stevens 1897:21). Knowledge of the excellent prospects for whaling prompted the White occupation of Cape May, and from 1650 to 1750 the whaling industry reached its peak in the Delaware Bay (Ibid: 30).

Also attracted by the abundant wildlife the Swedes formed early settlements along the Naurice River at Dorchester and Leesburg between 1637 and 1654 (Barber and Howe 1861:147). A Swedish village was also supposed to have been founded near Port Elizabeth about 1650 and by the end of the 17th century, a number of documents relating to the colonization of the river had appeared in Europe (Elmer 1869:72).

Shortly after 1675 the Indian title to all the land from the Delaware to the Maurice River was extinguished (Stevens 1897:29), but the area remained sparsely settled by Whites for a quarter century or more. Owing to the slowness of the



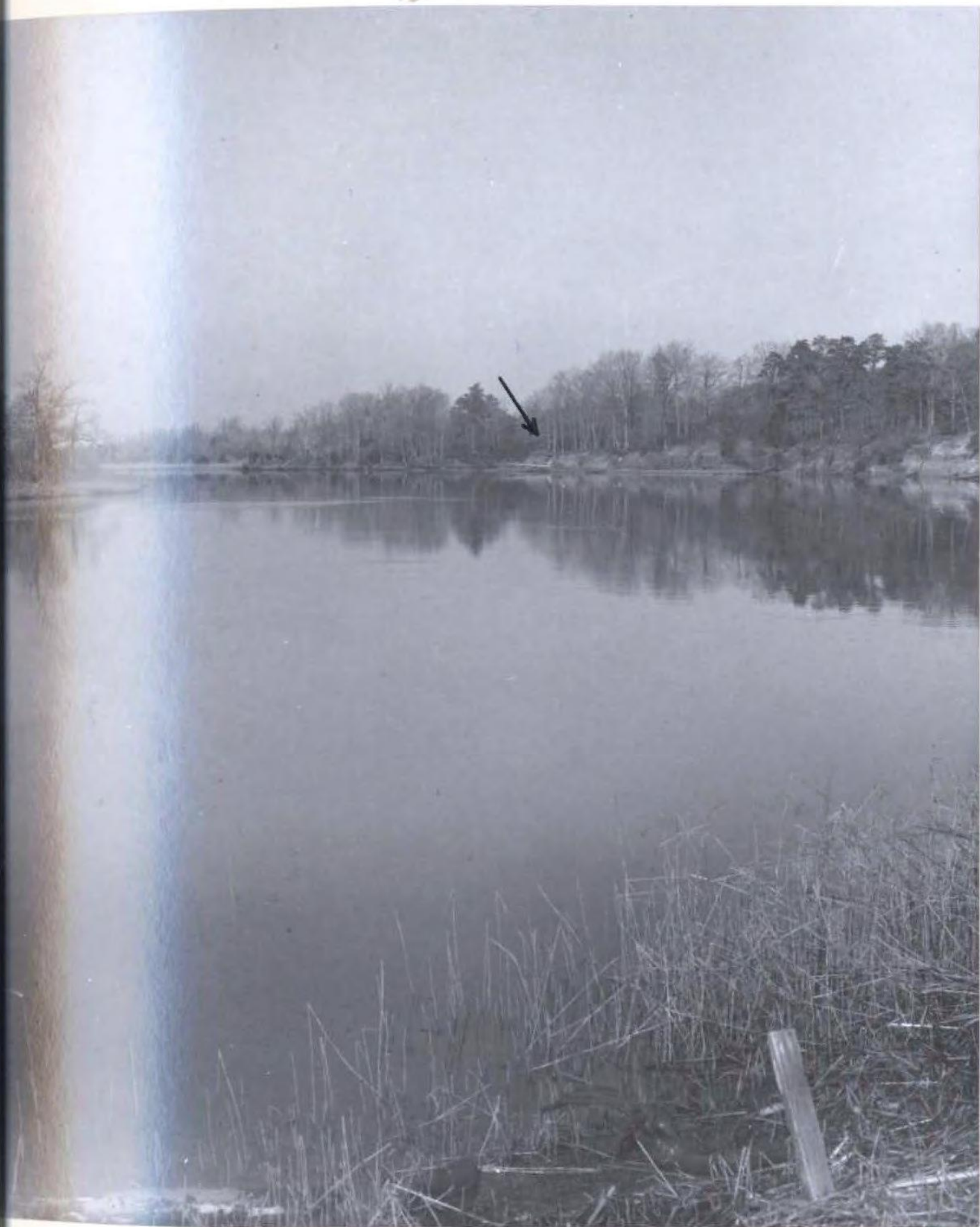
White infiltration the native population probably continued its claim of usufruct to the lower Maurice River valley, although no record of the Indian exodus from the area or of contact seems to have survived, except, perhaps, in the legendary account of the foundering and subsequent destruction by Indians of the Dutch ship the Prince Mauritz, whence the river derives its name. At any rate, with the passing of the Indians, certainly no later than 1750, begins a new era which is beyond the scope of the present report.

In the following sections the sites are described in detail. Included are data relative to stratigraphy, features, and artifacts as well as comments regarding the local and regional significance of each site and its archaeological contents.

- PLATE 1 -

GENERAL VIEW OF THE FRALINGER SITE.

Arrow indicates locus of excavation.



## THE FRALINGER SITE

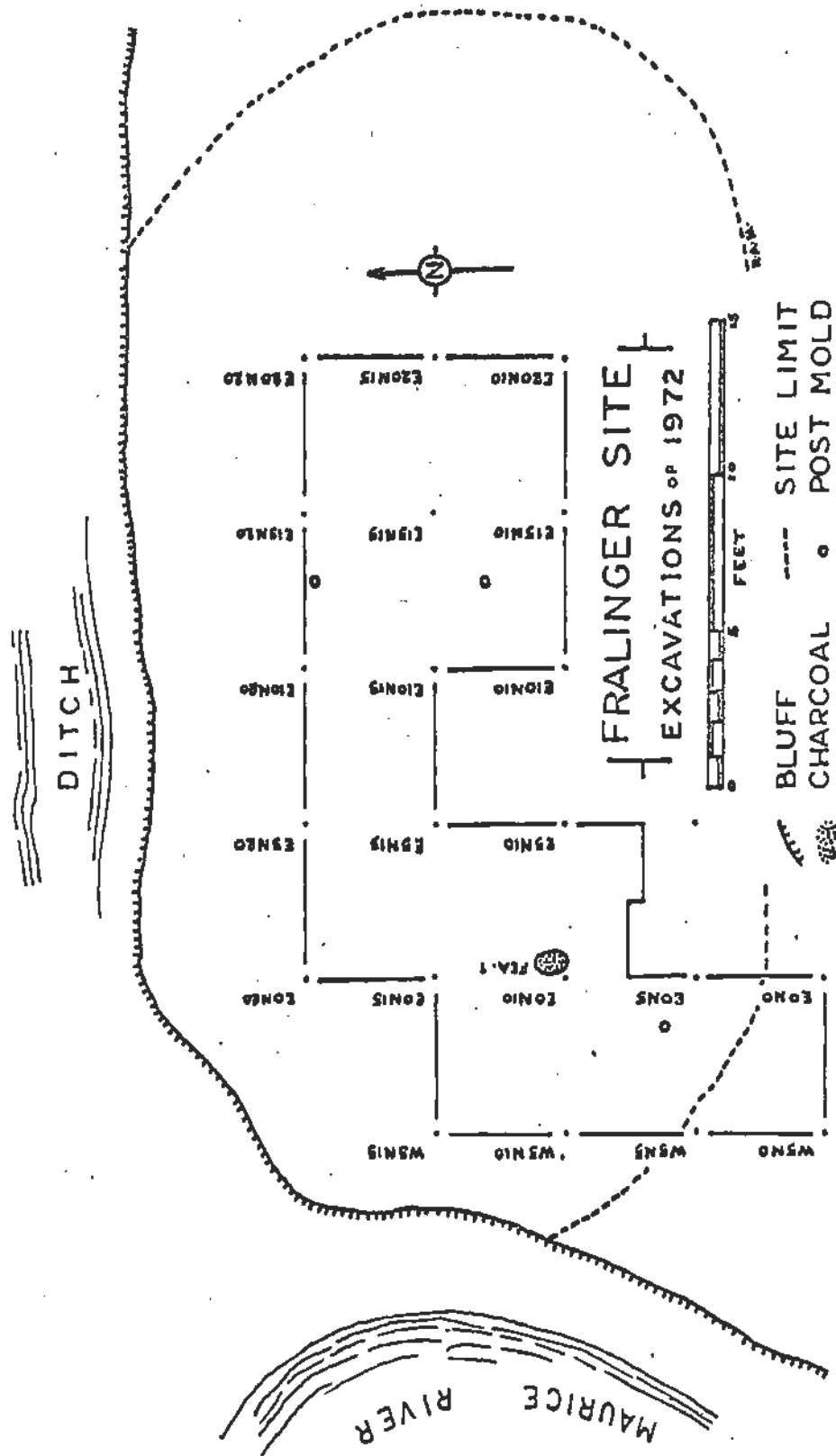
### Introduction

The Fralinger site is located along the east bank of the Maurice River about eight miles, straight line distance, north of the Delaware Bay on the property of Mrs. A. J. Fralinger of Bridgeton, New Jersey (Map 3). At this point the river is tidal and is bordered by extensive salt marshes. The site is situated in a grove of mature hickory and white oak trees on a well drained knoll of Sassafras sand that rises about 15 feet above flood tide. The broad spectrum of potential subsistence commodities obtainable from the bay, river, marshes, and forest is self-evident. In short, the location is well suited for human habitation.

Exposure from bank erosion of a thick horizontal stratum of nearly black soil led to systematic testing on the Fralinger property in December of 1971. Limited intensive testing established the extent of the site and clearly revealed its stratified nature. Favored by uncommonly clement weather, work continued through the month of January, 1972 during which time 10 five foot squares were opened and thoroughly explored (Map 3). The excavated area covers most of the existing intensively occupied portion of the site, which was in large part destroyed by the construction of a drainage ditch by a WPA work crew about forty years ago. Subsequent erosion has further reduced the site so that probably as little as half of the original area remained at the outset of our work.

### Stratigraphy

The stratigraphic sequence as exposed in the excavations is recorded below (Plate 2):



Modern Humus: The uppermost band is a recent humus and forest duff, more or less evenly deposited over the entire site with a thickness of three to six inches.

Recent Fill: This essentially sterile deposit is the backdirt of the WPA drainage excavation. Directly underlying the modern humus, it is composed of mottled dark soil and yellow sand. The recent fill forms a generally wedge-shaped deposit over most of the site, tapering in thickness towards the south from a maximum of c. two feet along the northern limit of the excavation.

Stratum 1: Stratum 1 is an old humus that was buried beneath the spoil of the WPA excavation. This layer, which varies in thickness from six to eighteen inches, is dark in color, ranging from light gray to black. It represents an occupation on slightly podzolized Sassafras soil (Toth, personal communication). In spots, this stratum splits into two fairly discrete zones (1 and 1A) which can be differentiated on the bases of color and texture. Stratum 1A is discernably lighter in hue than the superimposed Stratum 1 and is considerably more compact. This difference can be felt in troweling even where the color distinctions are not especially prominent. The difference between these two bands seem to relate to a relatively high clay content in the latter, possibly resulting from the intentional mixture and trampling of clay into the existing soil to create a living floor. This undoubtedly aboriginal feature measured c. five by ten by one-half feet in its greatest extent.

Both strata also contain charcoal in pieces of varying size and an occasional fragmentary oyster or clam shell. A

- PLATE 2 -

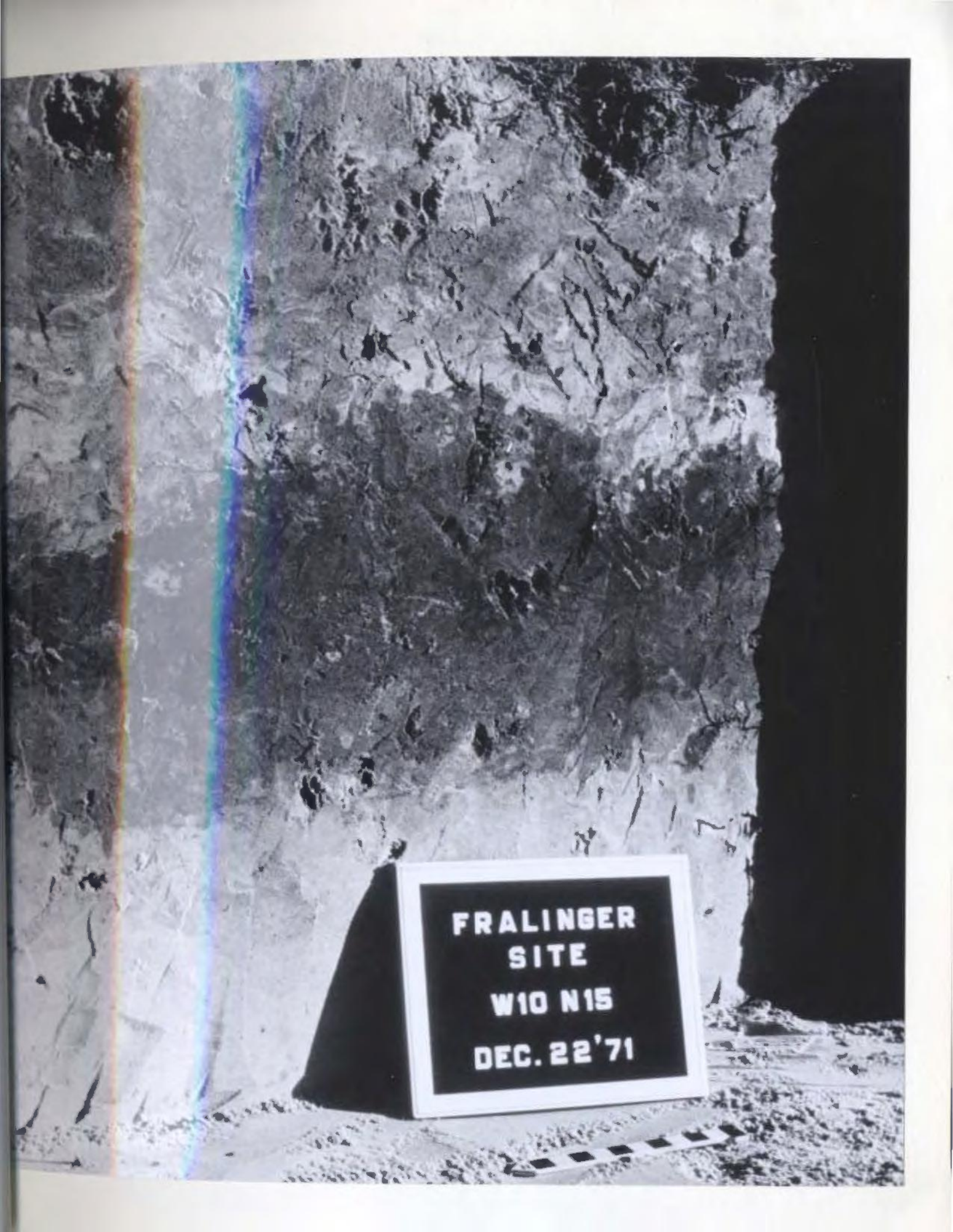
STRATIGRAPHIC PROFILE AT THE FRALINGER SITE.

Upper: Mottled recent fill.

Middle: Stratum 1 : Ancient humus.

Lower: Stratum 2 : Yellow sand.



A black and white photograph of a lunar surface. The terrain is rocky and uneven. A white rectangular sign with a black border is placed on the ground in the lower center. The sign contains the text "FRALINGER SITE", "W10 N15", and "DEC. 22'71". To the right of the sign, a portion of a black and white checkered scale bar is visible. A bright rainbow-like light streak runs vertically down the left side of the image. A dark, shadowed area is visible on the right side of the frame.

**FRALINGER  
SITE**

**W10 N15**

**DEC. 22'71**



few hickory nuts and fragments of refuse bone were also recovered. The artifactual contents of bands 1 and 1A is identical; hence, both horizons are thought to be coeval representing Late Woodland through contact habitations.

Stratum 2: Underlying the old humus for an undetermined depth is the yellow sand, typical of southern New Jersey. At the junction of the humus and the yellow sand and continuing several inches into the latter are found relics of the Susquehanna tradition. One small feature, described below, was found in the yellow sand.

The stratigraphic column was examined by S. J. Toth, Professor of Soils at Rutgers University during a visit to the site in July, 1972. Soil samples from both strata were analyzed by Toth with the following results:

<u>Sample</u>	<u>pH</u>	<u>Organic Matter</u>
Stratum 1	4.3	2.85%
Stratum 1A	5.3	1.06
Stratum 2	5.7	0.53

According to Dr. Toth, both the pH and the organic content of the samples are normal for the various depths in the Sassafra series, indicating that little free calcium from refuse deposits presently remains in the ground. The depth and exceptionally dark soil of Stratum 1 are not normal for this series, and Toth confirms that the humus is an occupational rather than a soils effect.

Feature 1: Feature 1 was a charcoal filled pit found in the yellow sand in the southwest corner of section EON10. The

pit was oval in plan and measured 19" X 24". It was basin-shaped in cross section and was about a foot from top to bottom; the orifice opened about nine inches below the base of the humus. The pit contained only charcoal in pieces up to finger-size. Unhappily, no associated artifacts were recovered, but to judge from its stratigraphic position the pit relates to the Susquehanna tradition component whose representative square-stemmed points were found near at hand. Charcoal from this feature yielded the very acceptable date of 1880 B.C.  $\pm$  100 years (I-6730) for the early development of the Susquehanna tradition in this area as reviewed in greater detail anon.

#### Artifacts

The artifacts from the Fralinger site were found in unequivocal stratigraphic context: the diagnostic artifact types of each component were physically separated from those of the other. No mixing was observed. The very few objects found out of context clearly do not relate to either major occupation and are believed to be intrusive. Thus, it is quite simple to isolate the elements of the two major assemblages in evidence here.

Artifacts from Stratum 1: The artifacts collected from Stratum 1 relate to Late Woodland occupations, continuing briefly it would seem, into the historic era. Representative artifacts include small triangular points, small end scrapers, and utilized flakes, all of flinty stones. Large, heavy ovoid scrapers of quartz were also noted. Shell-, grit-, and ochre-

tempered pottery was found in some quantity. Most of the sherds were cord-marked or plain, but a number of sherds of the Riggins Fabric-Impressed type were also found. At least two varieties of ceramic smoking pipes are in evidence. Other artifacts include numerous limonite nodules, many of which were calcined evidently in order to derive hematite for pottery temper or possibly for pigment. One small graphite paintstone and two whetstones of fine-grained sandstone were also found. Neither artifacts of bone or shell nor items of ground or polished stone were encountered. A plain tomhac button and various scraps of iron and copper objects provide exiguous evidence of occupation during the historic period. The association of the historic and aboriginal material is unequivocal: there is no doubt that they are coeval. Apparently intrusive artifacts include one Rossville point and a small corner-notched point from a root channel disturbance. Both point types, variously ascribed to Late Archaic to Middle Woodland horizons (Ritchie 1961:46; Kinsey 1972:366-67), clearly antedate the artifacts deposited in Stratum 1.

The artifacts collected from Stratum 1 are described below.

#### Stone Artifacts

##### Triangular Points (Plate 3)

Summary Description: Small isosceles triangular points.

Form: (1) Blade: Isosceles triangular with straight sides.

- PLATE 3 -

TRIANGULAR POINTS FROM STRATUM 1

AT THE PRALINGER SITE.

Material: local pebble jasper.



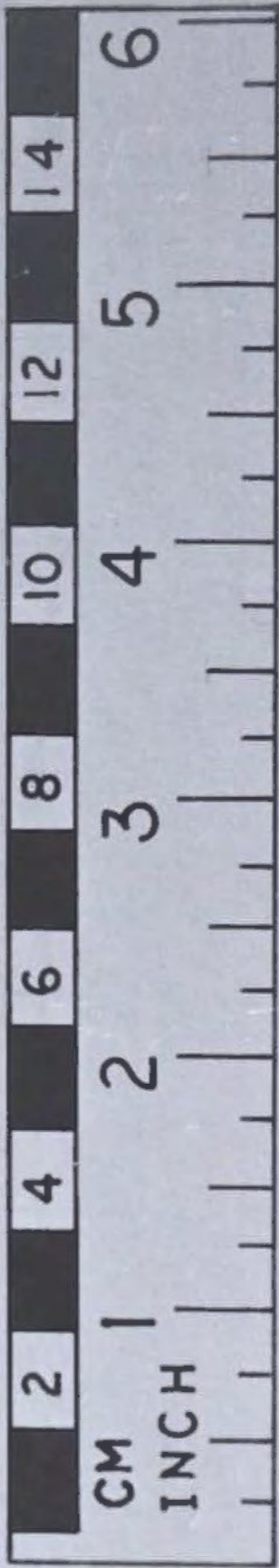
1



2



3



(2) Base: Straight to slightly concave.

Size: (1) Length:  $7/8''$  -  $1-1/8''$   
 (2) Width:  $3/4''$  -  $7/8''$   
 (3) Thickness:  $1/8''$  -  $1/4''$

Proportions: About  $1-1/3$  times longer than wide.

Manufacture: Percussion flaking with pressure retouch.

Material: Local pebble jasper.

Frequency: 3

Comment: These are local examples of the common Late Woodland triangular point, comparable to Ritchie's (1961: 33-34) Madison point type. The Fralinger specimens are relatively crude examples of this type, being somewhat haphazardly formed. Most show evidence of thermal alteration, but whether this was intentional cannot be presently determined.

#### End Scrapers

Summary Description: Small, steeply retouched unifacial trianguloid scrapers.

Size: (1) Length:  $3/4''$  -  $1-1/4''$   
 (2) Width:  $5/8''$  -  $1''$   
 (3) Thickness:  $1/4''$  -  $7/16''$

Manufacture: Unifacially chipped from small thick flakes by pressure.

Material: Local pebble jasper.

Frequency: 4

#### Ovate Scrapers

Summary Description: Thick, crude bifacially chipped ovate scrapers.

Form: (1) Blade: Ovate.  
 (2) Section: Lenticular to plano-convex.

Size: (1) Length:  $1-1/2''$  -  $1-3/4''$   
 (2) Width:  $7/8''$  -  $1-1/8''$   
 (3) Thickness:  $3/8''$  -  $1/2''$

Manufacture: Percussion flaking.

Material: Local pebble jasper, quartz.

Frequency: 2

Utilized Flakes: Seven unmodified flakes or spalls showing edge wear from use as scraping or cutting tools were recovered from Stratum 1.

Whetstones: Two whetstones were found. These consist of slabs or portions of fine-grained sandstone rocks worn smooth on one or more faces by abrasion.

Paintstone: One small graphite paintstone showing rubbed and polished edges was found. This discovery provides the only evidence for ornamentation or personal adornment found in the site, unless some of the calcined limonite nodules were also ground into pigment.

### Pottery

Riggins Fabric-Impressed (Cf. McCann 1950:315; Plate 4, Figs. 1, 2)

- Paste: (1) Temper: grit and crushed quartz up to 1/8" in diameter.  
 (2) Texture: Compact and smooth, sometimes sandy.  
 (3) Hardness: 2-1/2 - 3-1/2 on the Moh's mineral scale wherein 1= talc, 2= gypsum, 3= calcite, 4= fluorite.  
 (4) Color: Buff to light gray. Interior and exterior colors often vary.

Firing: Fairly complete oxidation.

Manufacture: Coil or fillet technique.

Surface Treatment:

- (1) Exterior: Exterior surface is marked with the impressions of a coarse wicker weave fabric, with uninterrupted impressions extending over large areas of the vessel. Impressions are often obliterated by smoothing. The fabric appears to have been woven from stiff, heavy warp material c. 1/16" in diameter laced with finer weft threads of twisted fibers c. 1/32" in diameter. The warp rods are spaced at regular intervals of 5/16".  
 (2) Interior: Smooth.

**Decoration:** Transverse or parallel cord-markings applied to the lip or rim. Less frequently, decoration includes single cord impressions or hollow reed punctations in simple linear designs. Incising was done with a blunt stylus. Incised motifs include pendant triangles, ladders, filled X's, or nested squares. Decoration is commonly restricted to the neck or rim but occasionally extends down over the shoulder or even over most of the body.

**Form:** (1) Lip: Rounded or flattened; often scalloped from transverse impressions of a cord-wrapped paddle.

(2) Rim: Straight or slightly everted, less often incurved.

(3) Body: Conoidal, ovate or sub-globular.

(4) Base: Conoidal or slightly rounded.

**Vessel Size:**

(1) Thickness: 3/16" - 1/4"

(2) Capacity: Varies from about one half quart to approximately four gallons.

**Frequency:** 27 sherds

**Comparisons:** Cognate forms include:

(1) Stony Creek Fabric-Imprinted (Evans 1955:71-72).

(2) Windsor Fabric-Imprinted (Smith 1950: 194).

(3) Abbott Fabric-Imprinted (Cross 1956:151).

**Comment:** Riggins Fabric-Imprinted is a very common pottery type on Late Woodland sites in southern New Jersey where it occurs with small triangular projectile points. On some sites it is thought to relate to historic or protohistoric Indian occupations (McCann 1957). The Riggins ware occupies a demonstrably late position at the Fralinger site where it was associated with triangular points and objects of European manufacture. The origins of Riggins Fabric-Imprinted may lie in Middle Woodland times as discussed in more detail below (p.185). Riggins pottery has been recorded in central New Jersey (Mason 1957: 11) and occurs at least as far North as Trenton (Cross 1956:150-51). Similarities



- PLATE 4 -

POTTERY FROM STRATUM 1 AT THE FRALINGER SITE.

- 1, 2. Riggins Fabric Impressed.
3. Fralinger Corded.
4. Riggins Plain.



1



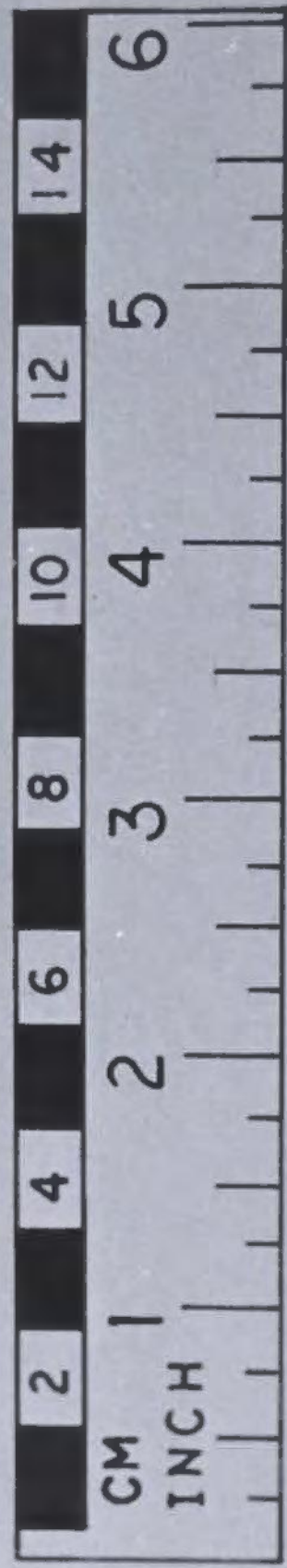
2



3



4



in decoration with Overpeck Incised, Bowmans Brook Incised, Indian Head Incised, and the Townsend types have been noted (Cross 1956:151). Some of the broad incising is reminiscent of zone-incised pottery of "Hopewellian" derivation at the Abbott Farm and elsewhere. Also, the similar transverse cord impressions on the late prehistoric Monogahela Cord-Marked pottery of southwestern Pennsylvania (Dragoo 1955: 102;128) suggest more distant cultural connections than had previously been assigned to the Riggins pottery.

Riggins Plain (Cf. McCann 1950: 315-16; Plate 4, Fig. 4.)

Paste: Same as Riggins Fabric-Impressed in all characteristics.

Firing: Same as Riggins Fabric-Impressed.

Manufacture: Same as Riggins Fabric-Impressed.

Surface: (1) Exterior: Smoothed. Some sherds bear very faint fabric-impressions.

(2) Interior: Same as Riggins Fabric-Impressed.

Size: Same as Riggins Fabric-Impressed.

Frequency: 27 sherds

Comment: Riggins Plain is equivalent to Riggins Fabric-Impressed with a smoothed exterior surface. The recorded distribution places it as an indigenous type of southwestern New Jersey.

Union Lake Corded (New type; Plate 42, Figs. 6-7; Plate 43, Figs. 1-3, 5.)

Paste: (1) Temper: Grit and crushed quartz up to 1/4" in diameter; also, muscovite ranging in particle size from flecks of c. 1/64" to pieces of 9/32" in diameter.

(2) Hardness: 2-1/2.

(3) Texture: Coarse and porous with a gritty feel.

(4) Color: Buff or reddish tan through light gray.

Firing: Partial oxidation.

Manufacture: Coil or fillet construction. Coil breaks and irregular fracture common.

Surface Treatment:

(1) Exterior: Malleated with a cord-wrapped paddle, with impressions most often overlapping but sometimes parallel. Cord impressions tend to be oblique to the rim, sloping down from the right at c. 50° from the horizontal. Cord markings end at the lip. The cord can be identified from the deep impressions as double-stranded, for the most part twisted clockwise with a few examples twisted in the opposite direction. The cord measures c. 1/16" in diameter.

(2) Interior: Smoothed.

Decoration: None.

Form: (1) Lip: Rounded or less often, flattened.  
(2) Rim: Thinned and slightly everted.  
(3) Body: Ovate or conoidal.  
(4) Base: Conoidal.

Size: (1) Thickness: 1/4" - 3/8".  
(2) Capacity: Probably 2 - 4 gallons.

Frequency: 24 sherds.

Comparisons: Cognate forms include:

(1) Accokeek Cord Marked (Stephenson and Ferguson 1963: 98-100).

(2) Albemarle Cord Marked (Evans 1955:41).

(3) Exterior Corded/Interior Smoothed.  
(Kinsey 1972: 454-55).

Comment: Union Lake Corded is but one of a number of similar and generally undifferentiated ceramic styles in New Jersey (Cross 1941:27) and in the Middle Atlantic States as a whole (Stephenson and Ferguson 1963: 98-100) where it is generally attributed to an Early

or Middle Woodland horizon. Without doubt the use of corded conoidal pots spans a lengthy period of time and appears as a trait in a number of diverse cultural settings. Evidence from Stratum 1 of the Fralinger site suggests that this pottery survived to a relatively late time in southern New Jersey.

Fralinger Corded (New type; Plate 4, Fig. 3)

Paste: (1) Temper: Predominantly crushed oyster shell varying in size from  $1/16''$  to  $1/4''$  in greatest dimension. Also present in all sherds is angular grit, sand or crushed quartz up to  $1/16''$  in diameter. A small amount of red ochre is commonly found in particles ranging in size from barely visible specks up to nodules of  $1/8''$  in diameter.

(2) Hardness: 2-1/2.

(3) Texture: Smooth but porous with a chalky feel.

(4) Color: Buff through light earthy gray.

Firing: Thoroughly oxidized: no firing clouding.

Manufacture: Coil or fillet technique.

Surface Treatment:

(1) Exterior: Haphazardly malleated with a cord-wrapped paddle. Some impressions suggest doubling or pairing of cords as in a coarse net or open fabric. The cord used to achieve this finish was two-stranded, twisted clockwise, measuring about  $3/32''$  in diameter. Cord impressions are generally deep, but some have been obliterated by smoothing the exterior. The absence of protruding temper particles on the exterior suggests that this surface was thoroughly smoothed or floated prior to malleation.

(2) Interior: Hand smoothed or wiped. Some shallow striations suggest scraping with a shell or some similar implement. Many voids show where the shell temper has leached or burned away. The other tempering agents are also more visible on the interior surface.

Decoration: None known.

Form: (1) Lip: Rounded or flattened.  
 (2) Rim: Slightly everted.  
 (3) Body: Ovate or conoidal.  
 (4) Base: Conoidal.

Size: (1) Thickness: 1/4" - 3/8"  
 (2) Capacity: Probably two to four gallons.

Comparisons: Morphological cognates include:  
 (1) Chickahominy Cord Marked (Evans 1955: 46).  
 (2) East River- and Windsor Cord Marked (Smith 1950:192-94).  
 (3) Townsend series pottery (Lopez 1961).  
 (4) Mockley Cord Marked (Stephenson and Ferguson 1963:105-107).

Frequency: 176 sherds.

Comment: The Fralinger Corded sherds from the type site were recovered from Stratum 1 along with small triangular points, Riggins pottery and historic artifacts. Similar pottery is known throughout southern New Jersey. Shell as a tempering agent is moderate to frequent in sites along the Delaware Bay and River from the Maurice River west to Salem Creek; the distribution is sporadic in the Mullica and Great Egg Harbor River drainages (Kier, personal communication) and as far north as the Abbott Farm site (Cross 1956: 131-60). Related types, usually classed as Early or Middle Woodland, occur widely throughout the Mid-Atlantic region.

Ceramic Pipes: Two varieties of ceramic smoking pipes are in evidence at the Fralinger site. Both styles show the same paste and firing characteristics as the Fralinger Corded pottery. They are both smooth and undecorated. One has a simple conical bowl with a thinned lip while the other has a cylindrical bowl with a flaring and flattened lip. Since both pipes are represented only by fragmentary bowls their overall form cannot be determined, but by analogy probably is of the obtuse-angle or elbow type (Ritchie 1965:295).

- PLATE 5 -

CERAMIC SMOKING PIPES FROM STRATUM 1  
AT THE FRALINGER SITE.



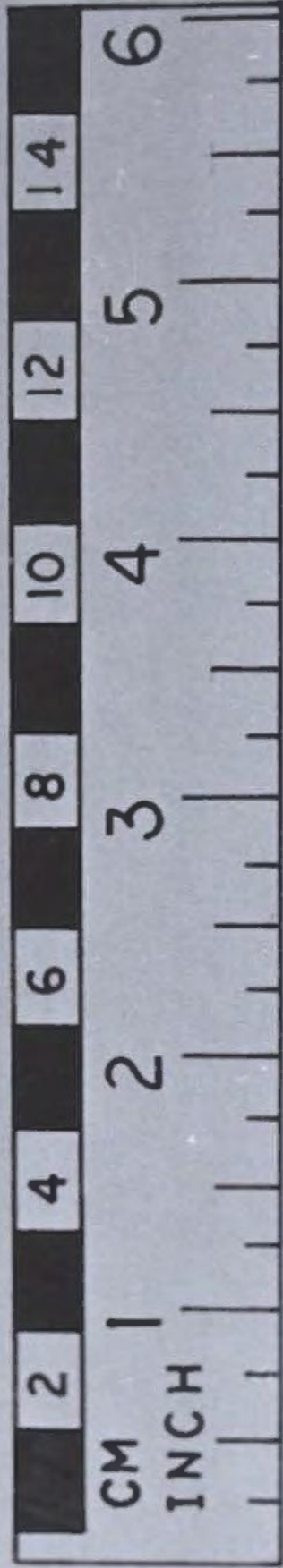
1



2



3





## Historic Artifacts

### Plain Button (Plate 6)

Summary Description: A plain tombac button.

Form: (1) Face: Plain. May have been covered with leather or fabric.

(2) Back: Plain.

(3) Eye: The eye is cast from white-metal and fastened to the button back by a boss.

(4) Boss: Tooled boss with rough edge around eye.

Size: (1) Diameter:  $1\frac{3}{64}$ " (slightly out of round).

(2) Thickness:  $\frac{1}{32}$ ".

Material: Tombac, a copper and zinc alloy.

Comment: This has been identified as a button of the period 1650-1750, enjoying its greatest popularity during the early 1700's (Albert and De Angelo, personal communication).

Other historic artifacts include a small bell-shaped object of extruded sheet copper, probably a bangle, and a rectangular buckle-like object of cast iron.

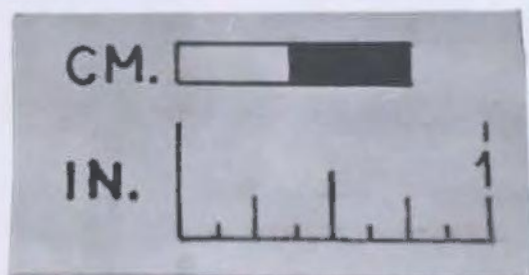
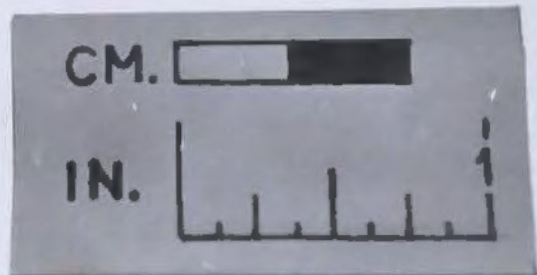
Artifacts from Stratum 2: The cultural remains from Stratum 2 are limited for the most part to broad-bladed, square-stemmed projectile points which characterize the Susquehanna tradition. Also found were large spalls of argillite, quartzite, and "ironstone" from which the points themselves were fashioned. An unfinished or broken sandstone adze or celt of the chipped variety was noted as was a small fragment of soapstone. Artifacts found in situ in Stratum 2 but of uncertain origin are three small points with short, broad stems. No other vestiges

- PLATE 6 -

TOMBAC BUTTON FROM STRATUM 1  
AT THE FRALINGER SITE.

Upper: Face.

Lower: Reverse.

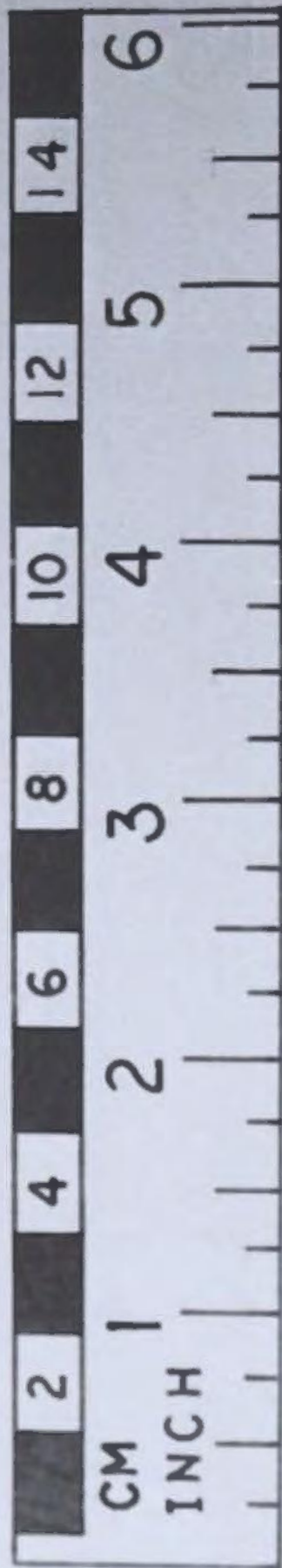
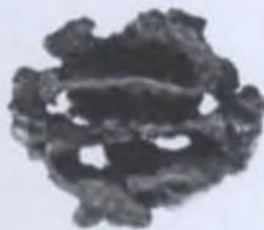


- PLATE 7 -

HICKORY NUTS FROM THE FRALINGER SITE.

Upper Row: Modern specimens.

Bottom Row: Archaeological specimens  
from Stratum 1.



- PLATE 8 -

FEATURE 1 FROM STRATUM 2 AT THE

FRALINGER SITE.



**FRALINGER  
SITE  
FEATURE 1  
EO N 10  
JAN. 3 '72**



of the Archaic tool kit have been recovered to date.

Descriptions of the artifacts from Stratum 2 are presented below.

#### Large Square-Stemmed Points (Plate 9)

**Summary Description:** Large, thin broad-bladed points with generally broad squarish stems.

**Form:** (1) Blade: Isosceles triangular with straight to irregular sides.  
(2) Base: Straight or slightly concave.  
(3) Stem: Squarish or rectanguloid, usually slightly contracting.  
(4) Shoulders: Distinct and often asymmetrical, usually sloping toward the base.

**Size:** (1) Length: c. 2" - 4"  
(2) Width: 1-1/2" - 1-7/8". One example was reduced by resharpening to only 7/8".  
(3) Thickness: 1/4" - 3/8". Predominately thin, all specimens but one measure 1/4" in thickness.

**Proportions:** About 1-1/2 to 2 times as long as wide as inferred from estimated lengths of broken specimens.

**Manufacture:** Made on large, flat spalls by removing a few large flakes by means of direct percussion.

**Materials:** Made from predominantly non-local materials, including argillite, shale, and fine-grained quartzite. One fragmentary example of local hematite-cemented siltstone was found.

**Frequency:** 6

**Comment:** These points are clearly related to the stemmed points of or derived from the Savannah River tradition, including Savannah River Stemmed points in the Southeast (Coe 1964:44-45) and Snook Kill (Ritchie 1961:47-48) and Koens-Crispin/Lehigh points (Kraft 1970:72-73; Kinsey 1972:423-26) in the Northeast, although they do not correspond in all particulars with these documented types. The primary distinction is that the Fralinger points have been rudely fashioned by striking a few broad flakes from large, flat spalls. These points have been radiocarbon dated



- PLATE 9 -

LARGE SQUARE-STEMMED POINTS FROM  
STRATUM 2 AT THE FRALINGER SITE.

Material: Argillite.



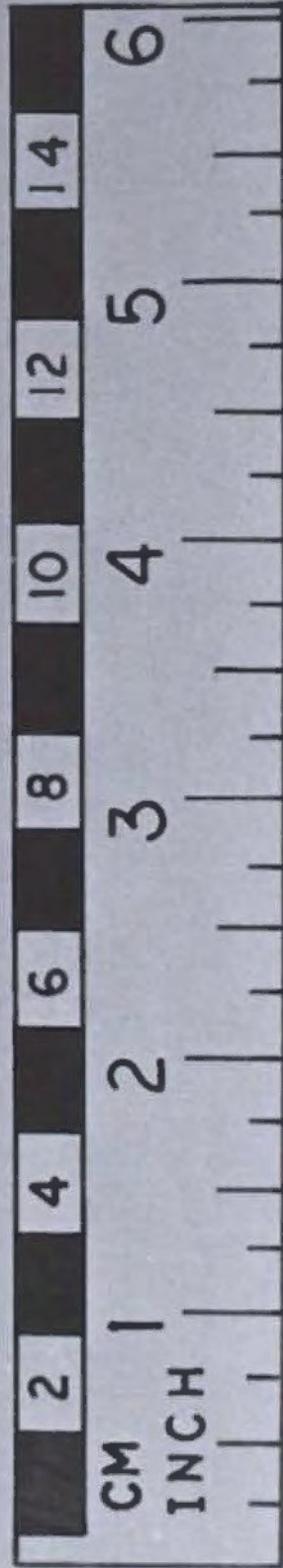
1



2



3



to 1880 B.C.  $\pm$  100 years (I-6730) on the basis of charcoal from Feature 1.

### Large Blade

**Summary Description:** A thick, leaf-shaped, convex-base blade.

**Form:** (1) Blade: Isosceles triangular, with excurvate sides.  
(2) Base: Convex.

**Size:** (1) Length: 2-7/8"  
(2) Width: 1"  
(3) Thickness: 3/8"

**Manufacture:** Percussion flaking.

**Material:** Cohansey quartzite.

**Comment:** This specimen probably belongs with the stemmed point component in Stratum 2 but whether it is a finished artifact or a blank for a stemmed point cannot be determined.

### Small Short-Stemmed Points (Plate 11)

**Summary Description:** Small triangular points with short, broad stems.

**Form:** (1) Blade: Equilateral triangular, with straight to slightly excurvate sides.  
(2) Base: Straight to somewhat irregular.  
(3) Stem: Short, broad, rectangular or slightly expanding stem.

**Size:** (1) Length: 1-1/8" - 1-1/4"  
(2) Width: 3/4"  
(3) Thickness: 3/16" - 1/4"

**Proportions:** About 1-1/2 times as long as broad.

**Manufacture:** Percussion.

**Material:** Local pebble jaspers and sandstone.

**Frequency:** 3

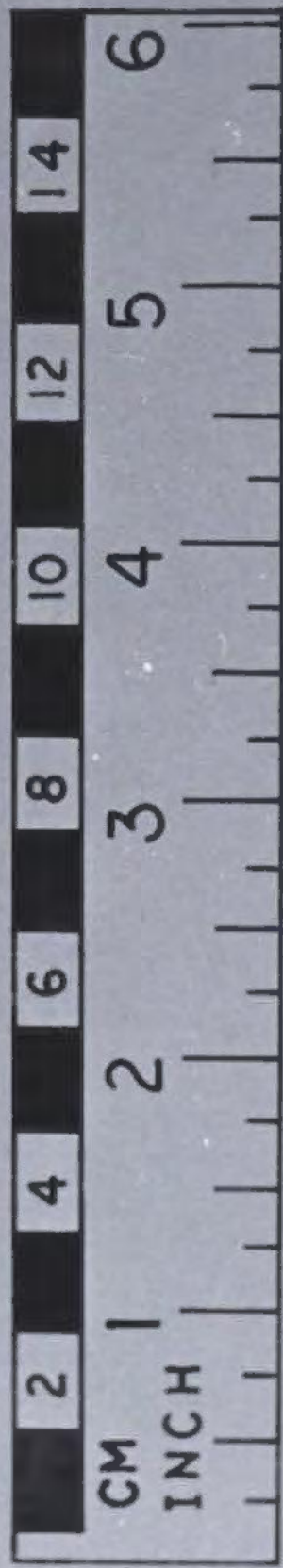
**Comment:** These points appear to be similar to the Late Archaic Shriver Stemmed points which have a general distribution in the Northeast and Middle Atlantic States (Kinsey 1972: 419-20). The occurrence of these small

- PLATE 10 -

CHIPPED BELT OR ADZE FROM STRATUM 2

AT THE FRALINGER SITE.

Material: Cohansey quartzite.



- PLATE 11 -

SMALL SHORT-STEMMED POINTS FROM  
STRATUM 2 AT THE FRALINGER SITE.

Material; 1. Jasper.

2. Sandstone.



1



2





points in Stratum 2 represents an unexpected divergence from the pattern of large square-stemmed points and may indicate a second, overlapping component here. Presently the data are insufficient to confirm this judgement.

Chipped Adze or Celt (Plate 10)

Summary Description: A chipped adze or celt of elongated trapezoidal form.

Form: (1) Plan: Elongated trapezoidal, widening toward the bit.  
(2) Section: Biconvex.

Size: (1) Length: 3"  
(2) Width: 1-3/4"  
(3) Thickness: 3/4"

Manufacture: Percussion. The bit end is broken so that no grinding is evident.

Material: Cohansey quartzite (sandy phase).

Comment: This object was recovered in two matching fragments from Stratum 2. It is unquestionably an element of the Susquehanna tradition at the Fralinger site. Such tools occur commonly in Susquehanna tradition components throughout the greater Northeast (Hawkes and Linton 1916: 73; Cross 1941: '87; 124; Witthoft 1953:12; Ritchie 1965: 153; 158; Kraft 1970: 99-100; Dincauze 1968: 34).

Surface derived artifacts: Artifacts found on the surface or in the disturbed recent fill were classed as "surface derived artifacts" and include a small side-notched point, a classic Koens-Crispin point, and a small irregular ceramic sphere (13/16" in diameter), which probably represents a remnant of pottery manufacture, but possibly was intended as a bead (Blaker 1963: 29) or an object of amusement.



### Interpretations

The Fralinger site is a stratified, two component station that bears evidence of Late Archaic and Late Woodland habitations. The cultural remains found here are distinct both in stratigraphic context and in typology. To the writer's knowledge this is the first site in southern New Jersey to produce crystal-clear evidence of discrete multiple occupations. The excavation of the Fralinger site allows not only the separate identification - albeit incomplete - of the cultural assemblages pertaining to each component but also provides the means of establishing their relative and absolute ages. Moreover, it sheds some new light on the subsistence resources of the Late Woodland inhabitants of the site.

At present the cultural manifestations at the Fralinger site accord well with those documented elsewhere along the Atlantic seaboard at the time levels in question. The cultural remains deposited in Stratum 1 at the Fralinger site represent a homogeneous component on the early historic level which is comparable, though not identical, to Late Woodland cultures in coastal New York and New England (Ritchie 1965:265-71; 1969:227-28). Related cultural units include the Sebonac, Bowmans Brook and Clasons Point phases in New York and the yet unnamed Late Woodland phase(s) on Martha's Vineyard, Massachusetts. With these phases are shared numerous cognates in material culture, particularly projectile point forms and the style, construction, and composition of ceramic vessels. However, our meager southern New Jersey

data do not permit the definition of a discrete Fralinger phase at the Late Woodland level so that more specific correlation with the New York and southern New England phases is presently impossible. Comparisons to the south along the coastal plain are presently limited by the retarded state of archaeological inquiry and reporting in the Mid-Atlantic region as a whole, although specific cultural connections with that area must certainly exist and may one day prove to be more direct than those presently known to the north (Omwake and Stewart 1963; Stephenson and Ferguson 1963).

The in situ discovery of historic artifacts in unequivocal association with the aboriginal remains clearly places the terminal occupation of the site near the end of the 17th century, and while the absolute duration of the Late Woodland habitation remains obscure, it is entirely possible that several undifferentiated occupations of the same culture, spanning several decades or longer, are represented in Stratum 1.

For the moment the following may be regarded as elements of a Late Woodland complex: Fralinger Corded, Union Lake Corded, and Riggins Fabric-Imprinted and Plain pottery; tobacco pipes of two varieties; triangular stone points; triangular and ovate scrapers; utilized flakes; whetstones; the use of graphite for paint; and, a few items of European manufacture, including a plain tombac button and unidentified iron and copper objects. This listing is provisional since the Fralinger complex as herein defined probably includes traits of more than one late prehistoric phase.

The exiguous remains of what once must have been a varied tool kit suggest an orientation towards hunting as the primary subsistence activity, and in fact, a few badly decayed refuse bones, probably of deer, were recovered from the humus zone. Fragmentary oyster and clam shells were also found in the undisturbed humus along with a half dozen hickory nuts, of undetermined species. These discoveries tend to round out the inventory of preferred comestibles, but on the basis of current evidence, it is impossible to determine the relative significance of any of these foods in the diet of the aboriginal inhabitants of the Fralinger site.

No evidence of housing has survived save for the clay-rich possible living area of Stratum 1A and a few scattered postmolds. It is likely that had the greater part of the site not been destroyed by prior digging and erosion, some further evidence of lodges would have come to light. Likewise data on the mortuary and religious practices as well as the socio-political organization of the Late Woodland Fralinger folk remain to be collected.

Similar obscurity surrounds the social life of the site's earlier inhabitants whose vestiges in Stratum 2 relate to the inchoate development of the Late Archaic Susquebanna tradition. The artifact inventory for this manifestation comprises broad, square-stemmed points, the chipped adze or celt, and the use of soapstone, presumably for bowls. An affinity to Ritchie's (1965:134-41) Snook Kill phase and the closely related Koens-Crispin/Lohigh complex (Witthoft 1953; Ritchie 1965:135; Kinsey 1972:349-53) is self-evident.

While the Fralinger artifacts show palpable affiliation with these better known Susquehanna tradition complexes, the stemmed points from this site do not classify readily as holotypic specimens in any of the established point categories. As a rule the Fralinger examples exhibit less refined workmanship and rougher appearance than do the other broad stemmed points which fact suggests the primacy of our southern New Jersey specimens. The Fralinger material dated to 1880 B.C. is, in fact, the earliest known expression of the Susquehanna tradition in the Northeast. Other C-14 dates for related manifestations range from c. 1500 B.C. for the Snook Kill phase of New York State (Ritchie 1965:135) to c. 1720 B.C. for the Koens-Crispin/Lehigh complex in the upper Delaware Valley (Kinsey 1968:246; Kraft 1970:31) with an intermediate determination of 1670 B.C. from the Litchfield site in New Hampshire (Finch 1965:15; Dincauze 1968:32). In the Southeast the parent Savannah River complex dates to c. 1900 B.C. (Coe 1965:44-45). The Fralinger assay is therefore significant inasmuch as it bridges what would otherwise be a lengthy gap in the proposed historical continuum.

The presence of these large projectile points - which almost certainly armed spears - attest to a subsistence economy based upon the hunt. The vast majority of the specimens are represented only by basal fragments which indicates that the expended weapon was brought back to camp for refitting.

The preference shown for non-local argillites and

quartzites indicates a trade/travel relationship oriented towards the upper Delaware Valley (Lewis 1916). Whether the idealized artifact design enhanced the preference for exotic materials, from which large objects could be fashioned, remains to be seen.

The presence in Stratum 2 of three small short-stemmed points is of some interest since it suggests the possibility of a second Archaic component at the Fralinger site. These three points, which have already been likened to Shriver Stemmed points were localized, both horizontally and vertically, in the deposit. Their precise cultural and chronological position within this site and within the regional framework as a whole remains unclear and might profitably be considered a problem for future research.

- PLATE 12 -

GENERAL VIEW OF THE CADWALADER SITE.

Arrow indicates locus of excavation.



## THE CADWALADER SITE

### Introduction

The Cadwalader site occupies the southwestern end of a small, low-lying island in the salt meadow about eight-tenths of a mile northeast of the East Point Light at the embouchure of the Maurice River (Map 4). This unnamed island is owned by the State of New Jersey and is controlled by the New Jersey Division of Fish, Game, and Shell Fisheries as part of the Cadwalader Public Hunting and Fishing Ground. The loose, sandy, gently hummocky surface supports an often dense growth of white cedar, wild cherry, bay berry, honeysuckle and Indian grass.

The presence on this island of an Indian site - signaled by scattered oyster shells, dark soil, and surface-derived artifacts - was brought to the writer's attention early in December of 1971 by Perry A. Brett of Vineland, New Jersey. A cursory surface inspection shortly thereafter confirmed the validity of Mr. Brett's observations and further revealed the existence of a second, somewhat disturbed, locus of aboriginal occupation, about 100 yards northeast of the original finds.

A request for permission to test and excavate on the island was filed in early January 1972 with the Division of Fish, Game, and Shell Fisheries, and two months later the request was approved. Brush-clearing and systematic testing began in the second week of April, 1972 followed by the excavation of 15 five foot squares during the remainder of the



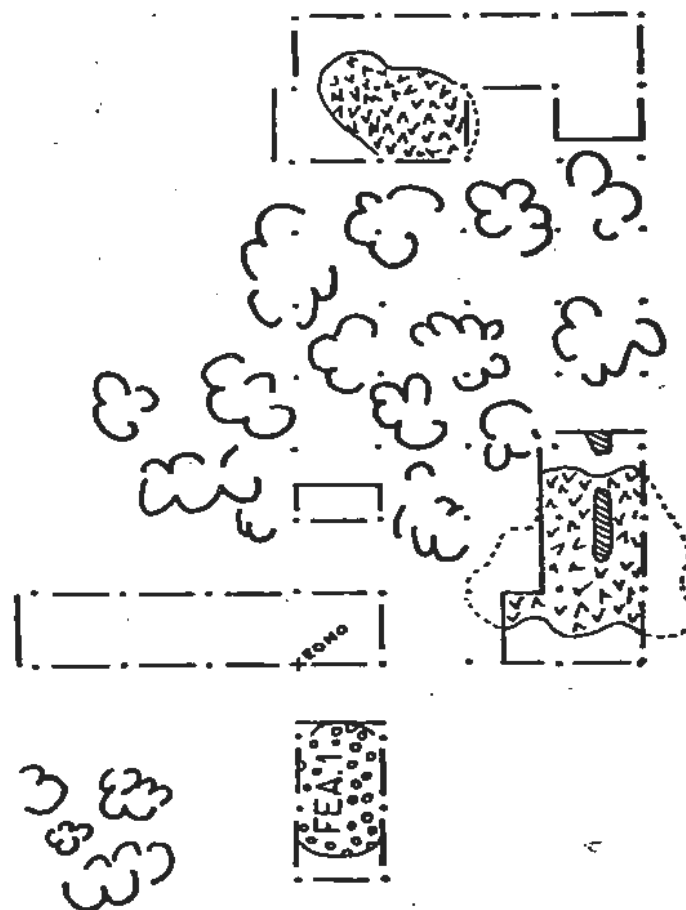
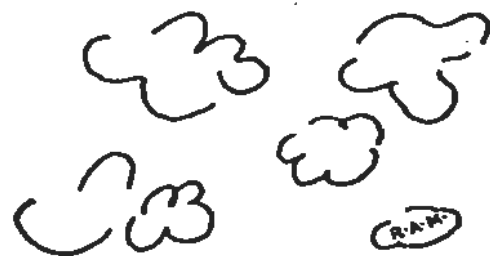
# CADWALADER SITE

EXCAVATIONS of 1972

## LEGEND

- ~~~~~ - SHELL SPREAD
- oooo - FIRE-BROKEN STONE
- ☁ ☁ ☁ - CEDAR TREES & BRUSH
- ||||| - MODERN DISTURBANCE

0 5 10 15 20  
SCALE : FEET



MAP 4

month. The excavation yielded a homogeneous assemblage of artifacts in generally undisturbed context.

### Stratigraphy

The excavations at the Cadwalader site failed to reveal the distinct, continuous cultural stratification such as evinced at the Fralinger site. Nevertheless, the cultural remains at the Cadwalader site - including large irregular spreads of oyster shell, refuse, bone, and artifacts of various kinds - were found consistently in a predictable relationship to the recognized natural strata.

The relatively uncomplicated natural stratigraphy of the Cadwalader site comprises two distinct layers, viz., a continuous dark gray to nearly black sandy humus, measuring eight to twelve inches in thickness, underlain to an unknown depth by a stratum of fine unconsolidated yellowish dune sand (Toth, personal communication). The artifacts and features at the Cadwalader site occupy an invisible horizontal zone, about one foot thick, centered along the stratigraphic interface. For the most part, the shell spreads, which also served as cultural stratigraphic markers, were encountered near the base of the humus or resting upon the yellow sand. The artifacts showed a similar, though understandably greater, vertical distribution than the shell beds. This differential distribution probably results from the inadvertent trampling of loose objects into the unconsolidated sand. On the other hand oyster shells, especially when interlocked en masse, present considerable surface area and would, therefore, not

- PLATE 13 -

PROFILE AT THE CADWALADER SITE SHOWING  
CUT THROUGH ABORIGINAL SHELL DEPOSIT.

CADWALADER

SITE

PROFILE

E15 N5

APR. 17 '72



be similarly displaced.

The stratigraphic profile at this station is typified by the cross section exposed in section E15N5 (Plate 13). In this section the humus is about twelve inches thick and is underlain by a mass of discarded oyster shells, measuring about three inches in maximum thickness. Directly beneath the shells occurs a light gray band of stained sand, also about three inches thick. Underlying this layer is the yellow sand. Artifacts, including Cadwalader Corded sherds, chips and side-notched points of exotic materials as well as refuse bone, occur among the shells and continue sporadically down into the yellow sand for about three inches. Sherds of the Heislerville Corded style occur at this level, consistently beneath the shell spreads and somewhat deeper than the other artifacts.

S.J. Toth collected soil samples during a visit to the site in July 1972. The results of his analysis are reproduced below:

<u>Sample</u>	<u>pH</u>	<u>Organic Matter</u>
Humus	6.7	2.79%
Yellow Sand	6.7	1.09

The relatively high pH values, indicating low soil acidity in both strata, reflect the presence of large masses of oyster shells as does also the abundance of excellently preserved refuse bone.

## Features

A total of three features were discovered during the Cadwalader site excavations. These include a large bed of fire cracked cobbles (Feature 1) and two unnumbered masses of refuse oyster shell.

Feature 1 (Plate 14): This feature was a large platform of fire-broken rocks, measuring about five by seven and one-half feet with the long axis running north and south. Feature 1 encompassed all of section EQS10 and the northern half of EQS15 (Map 4). Quite by chance the east/west dimension of the excavation coincided with the width of the rock spread. The cracked and discolored rocks included in the feature ranged in size from one-and-one-half to six inches in greatest dimension. Their arrangement in the ground was diffuse and without regard to plan. Considerable sand separated the stones both horizontally and vertically. The rocks, of which more than 350 were counted, were first discovered in the base of the humus and continued to a depth of five inches in the yellow sand. Contents of the feature other than rocks were negligible. Neither charcoal nor stained soil were observed. Only a half dozen cord-marked sherds could be attributed to the feature. At the Stony Brook and Wading River sites, Ritchie (1959: 27; 83) discovered similar spreads of firebroken rock, also notable for the absence of charcoal or stained soil, which he interprets as baking or roasting

- PLATE 14 -

FEATURE 1 AT THE CADWALADER SITE.





CADWALADER  
SITE  
FEATURE 1  
EQ S10&15  
APR. 16 '72



areas connected with the preparation of shellfish.

Shell Spreads: The presence of several large shell spreads on the island was indicated by surface clusters of loose oyster shells, refuse bone, and artifacts. Two such large irregular shell masses were excavated, the smaller of which covered an area of approximately fifty square feet while the larger was perhaps twice that size. Both conformed to the contour of the original ground surface and ranged in thickness from a maximum of five inches in the center to one-half inch or less at the edges. The masses which were overwhelmingly composed of fragmentary, whole, and sometimes paired, valves of oyster with very rare inclusions of hard shell clam and whelk, unquestionably represent the detritus of aboriginal oyster harvesting and preparation.

#### Artifacts

The excavations at the Cadwalader site yielded a homogeneous lot of artifacts relating to a single Early Woodland occupation. The artifact inventory comprises pottery of two pastes, crude side-notched points, and an assortment of bone and antler implements. Other artifacts clearly not pertaining to the Early Woodland horizon include scattered aboriginal and historic relics found on the surface and at shallow depths in the top soil. An isolated Rossville point of local sandstone was discovered in otherwise sterile sand several inches beneath the humus in section

E5N30. Because of its lack of associations and distinct differences in form and lithology as compared to the Early Woodland side-notched points, it cannot be ascribed with certainty to the primary occupation of the site.

The artifacts collected during our excavations at the Cadwalader site are described below.

### Stone Artifacts

#### Cadwalader Side-Notched Points (New type; Plate 15, Figs. 1-5).

Summary Description: Side-notched points with broad blades and expanding stems.

Form: (1) Blade: Isosceles or equilateral triangular in outline with slightly excurvate sides; biconvex in cross section.  
 (2) Base: Convex to straight.  
 (3) Notches: Broad and shallow. Notches measure about  $5/16$ " from shoulder to base; about  $1/16$ " to  $1/8$ " deep.  
 (4) Shoulders: Rounded, sloping toward the base.  
 (5) Stem: Expanding to approximate blade width, more or less. Stem extremities are generally rounded with a tendency toward barbing in some specimens.

Size: (1) Length: 1" - c.  $2-3/16$ "  
 (2) Width:  $5/8$ " -  $15/16$ "  
 (3) Thickness:  $1/4$ " -  $3/8$ "

Proportions: Vary from c.  $1-1/2$  to  $2-1/3$  times as long as broad.

Manufacture: Percussion flaking with some secondary pressure retouch.

Material: Exotic jasper, chalcedony, and chert.

Frequency: Five, including three broken specimens.

Comment: This description is based upon a small sample from sites in the lower Maurice River drainage. Two varieties appear to be present, viz., one relatively long and narrow, the other short and broad. Longer specimens in the collection are broken and battered at the tip as though used

as scrapers and strikers. Shorter examples appear to result from resharpening. These points were found in direct association with the flat-bottom Cadwalader Corded pottery. Points of similar form are widely distributed in New Jersey and throughout the East at the Early Woodland level usually as a minority type. They apparently survive into Middle Woodland times. Kinsey (personal communication) has tentatively identified the Cadwalader specimens as cognates of his generalized side-notched points of the Middle Woodland Bushkill complex in the upper Delaware valley. Thus far ancestral forms have not been recorded but may include an expanding-stemmed variety of Koens-Crispin-like points or as Ritchie suggests (personal communication) the Sylvan Side-Notched form of Late Archaic age in the Hudson Valley.

#### Triangular Scraper

Summary Description: A thick triangular scraper.

Form: (1) Blade: Isosceles triangular.  
(2) Base: Convex.

Size: (1) Length: 1-1/2"  
(2) Width: 15/16"  
(3) Thickness: 3/8"

Manufacture: Percussion.

Material: Non-local chert.

Comment: Found directly under the Early Woodland shell layer in a test pit. Sides and base are dulled as though drawn over a soft or resilient surface.

#### Chopper

Summary Description: Large fragmentary plano-convex chopper.

Form: (1) Blade: Oval or pyriform in plan.  
(2) Section: plano-convex.

Size: (1) Length: c. 4" (estimated reconstruction)  
(2) Width: 1-3/4"  
(3) Thickness: 3/4"

Material: Cohansey quartzite.

- PLATE 15 -

CHIPPED STONE ARTIFACTS FROM THE CADWALADER SITE.

1 - 5. Cadwalader Side-Notched points.

6 - 7. Utilized flakes.

8. Expanding stemmed point.

Material:

1 - 4, 8. Exotic jaspers.

5. Translucent chalcedony.

6 - 7. Pebble jasper.



1



2



3



4



5



7



6



8



Comment: A crude probable chopping or scraping tool.

Utilized Flakes (Plate 15, Figs. 6-7): Two unmodified jasper flakes which show use as knives or scrapers were found in the excavations.

Notched Netsinkers (Plate 18): Two flat oval sandstone pebbles with paired rudimentary notches may have functioned as netsinkers.

### Pottery

Gadwalader Corded (New type; Plate 16, Figs. 1,2,4; Plate 17)

Paste: (1) Temper: Lamellar fragments of oyster shell up to 9/32" long; accounting for 15%-30% of the paste. Such shell temper is most commonly represented by voids due to burning or leaching, but solid shell is present in 32% of the sherds. Sand and quartz pebbles up to 1/4" in diameter are occasionally present, perhaps as native constituents of the clay. Particles of red ochre, ranging in size from barely visible specks up to 1/8" in diameter are not uncommon.

(2) Hardness: 2 - 2-1/2.

(3) Texture: Coarse and porous. Sherds have a chalky feel and are extremely friable, especially when wet.

(4) Color: Color ranges from buff to ochre red. Some sherds have dark gray to black interiors and cores.

Firing: Incomplete and irregular. Many sherds show fire-clouding and darkened cores and interiors, indicating incomplete or poorly controlled oxidation.

Manufacture: Modeling and coiling. While some sherds exhibit fractures along junctions of coils, most break irregularly and often exfoliate, suggesting modeling as the dominant manufacturing method.

Surface Treatment:

(1) Exterior: Completely cord-marked or malleated with a coarse open twined fabric com-

posed of double-stranded cords, twisted counterclockwise. The cords measure  $1/32$ " in diameter. Cord markings run in various directions with a tendency to be vertical, especially near the rim.

(2) Interior: Interiors are horizontally cord-marked. Cord impressions in most cases are partially obliterated by wiping or scraping. A number of sherds were impressed with a coarse, closed twined fabric of fine weft threads c.  $3/32$ " in diameter and stiff warp rods c.  $1/8$ " in diameter. Impressions of the warp seem to run vertically.

Decoration: None

Form: (1) Lip: Rounded or flattened.

(2) Rim: Thinned and nearly vertical or slightly everted.

(3) Body: Cylindrical or tub-shaped with nearly vertical to markedly out-sloping walls. One sherd from the Cadwalader Annex site bears what appears to be a rudimentary mammiform lug.

(4) Base: Flat and ellipsoidal or discoidal, measuring about 6" in diameter. Both interior and exterior surfaces of the base show cord impressions. The basal sherds are beveled between  $137^{\circ}$  and  $145^{\circ}$  along the circumference. Slight vertical curvature near the base on some body sherds would tend to bring the out-sloping walls to a more nearly upright position. Bases are without lateral protrusion or "heels."

Size: (1) Thickness: Varies from  $1/2$ " at the base to  $1/4$ " at the rim.

(2) Capacity: Probably one to four gallons.

Frequency: 582 sherds.

Comparison: Cadwalader Corded pottery shares its basic form and dominant modeled construction with the following documented Early Woodland types:

- (1) Fayette Thick (Webb and Baby 1957:20).
- (2) Half Moon Cordmarked (Fetzer and Mayer-Oakes 1951:18-20).
- (3) Ware Plain (McCann 1950:316-17).
- (4) Marcey Creek Plain (Manson 1948:225).

It also possesses interior/exterior cord-marking in common with the corded pottery of coastal New York, especially:

- (1) Vinette 1 (Ritchie and MacNeish 1949:100).

- (2) Modified Interior Cord Marked (Lopez 1957:27).
- (3) Unnamed interior cord-marked ceramics from the Jamesport and Sugar Loaf Hill sites in eastern Long Island (Ritchie 1959:66-67).
- (4) Shell-tempered "Vinette" from Manhattan; and flat-bottom, shell-tempered vessels with interior/exterior cord markings from Throgs Neck (Smith 1950:135, 165, 172).

**Comment:** Clearly related to various Early Woodland ceramic types in the East as noted above. The Cadwalader Corded pottery is the dominant diagnostic artifact of the Early Woodland assemblage at the Cadwalader site. The presence at the Cadwalader Annex site of a single pointed basal sherd of like paste and surface treatment suggests the coeval occurrence of conoidal vessels as part of this Early Woodland manifestation.

Heislerville Corded (New type; Plate 16, Fig. 3).

**Paste:** (1) Temper: Coarse quartz sand and crushed quartz up to 1/4" in diameter. Temper accounts for 30% - 50% of the paste.

(2) Hardness: 2-1/2 - 3-1/2

(3) Texture: Coarse and dense with a gritty feel.

(4) Color: Consistently light tan.

**Firing:** Fairly thorough firing in an oxidizing atmosphere: limited fire-clouding and darkened cores.

**Manufacture:** Made from coils or annular segments; some cleavage along coil junctions.

**Surface Treatment:**

(1) Exterior: Heavily and haphazardly malleated with a cord-wrapped paddle. Cord markings tend to be oblique to the rim, intersecting same at 40°. Impressions indicate the size of the malleating cord was c. 1/16" in diameter but are too indistinct to admit further description. Some exteriors are severely eroded, exposing the tempering material.

(2) Interior: Plain with some very faint evidence of smoothing or brushing. The interior is quite irregular with pronounced and randomly spaced depressions as though the clay were

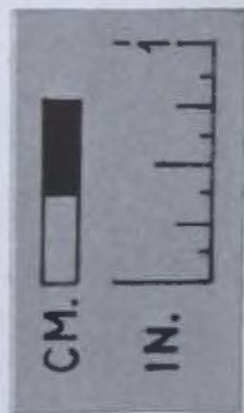
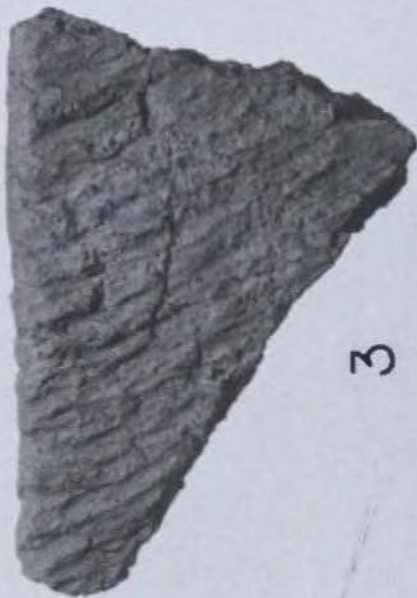


- PLATE 16 -

RIM SHERDS FROM THE CADWALADER SITE.

1, 2, 4. Cadwalader Corded.

3. Heislerville Corded.



- PLATE 17 -

CADWALADER CORDED SHERDS FROM THE  
CADWALADER SITE.

1. Basal sherd (exterior).
2. Rim sherd (exterior).
3. Basal sherd (interior).
4. Rim sherd (interior).



2



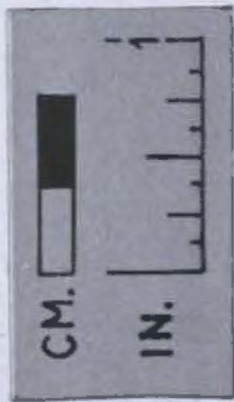
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- PLATE 18 -

PROBABLE NOTCHED NETSINKERS FROM  
THE CADWALADER SITE.

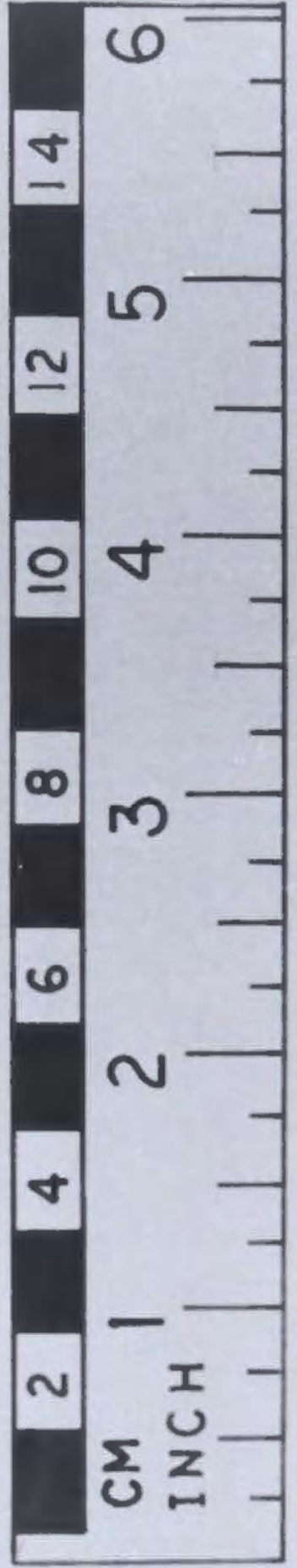




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2



manually kneaded during construction with no subsequent effort made to even the interior surface.

Decoration: None.

Form: (1) Lip: Rounded.  
 (2) Rim: Not thinned; very slightly everted.  
 (3) Body: Indeterminate; probably cylindrical or tub-shaped.  
 (4) Base: Indeterminate; probably flat or flattened.

Size: (1) Thickness:  $5/16'' - 3/8''$   
 (2) Capacity: Indeterminate.

Frequency: 80 sherds.

Comparisons: The closest counterpart is the unnamed cord-marked, crushed-stone tempered and flat-bottom pottery from the Ware site, Salem County, New Jersey (McCann 1950:317).

Comment: Part of the Early Woodland assemblage at the Cadwalader site. It occurs consistently deeper than the Cadwalader Corded pottery, thus demonstrating a slight temporal priority. The general cultural and chronological connections are shared with the Cadwalader Corded pottery.

Bone and Antler Implements (Plate 19): Three fragmentary bone or antler awls or needles were recovered from the Early Woodland shell spreads. A conical antler projectile point tip and median section were also found as was a grooved and broken antler tine. Three complete examples of the bone and antler industry include a spatulate bone tool, a bird bone splinter awl, and a deer antler netting needle.

Spatulate Bone Tool (Plate 19, Fig. 5)

Summary Description: A small spatulate bone tool.

Size: (1) Length:  $1-5/8''$   
 (2) Width:  $1/2''$   
 (3) Thickness:  $1/4''$

Comment: A small tool with blunted edge suggesting use as a rubbing or scraping instrument.

- PLATE 19 -

BONE AND ANTLER ARTIFACTS FROM THE  
CADWALADER SITE.

1. Antler netting needle.
- 2 - 4. Bone splinter awls.
5. Spatulate bone tool.
6. Cut antler tine.





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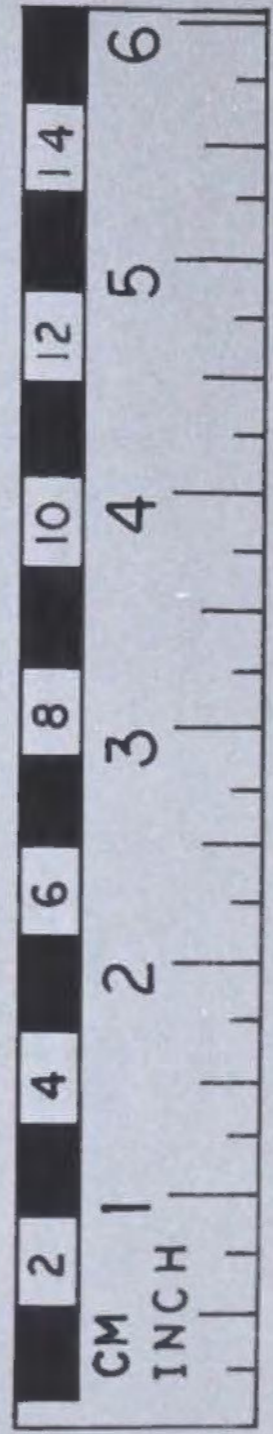
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Bird Bone Awl (Plate 19, Fig. 2).

Summary Description: A small bird bone splinter awl.

Size: (1) Length: 1-1/2"  
 (2) Width: 1/4"  
 (3) Thickness: 1/16"

Comment: A single splintered bird bone, utilized as an awl.

Antler Netting Needle (Plate 19, Fig. 1).

Summary Description: A tapered and flattened netting needle, perforated and notched at the base.

Form: (1) Point: Conical.  
 (2) Blade: Flattened.  
 (3) Base: Perforated and apparently broken through an old perforation. Base is highly polished.

Size: (1) Length: 3-5/16"  
 (2) Width: 3/8"  
 (3) Thickness: 1/4"

Comment: Fashioned from a split antler. The entire surface is smoothed and shows striations from the forming process or from use. The base is polished, apparently from use. Probable function; netting needle.

Historic Artifacts (Plate 20): A scattering of historic artifacts appeared on the surface and in the upper levels of the humus at the site. These artifacts comprising a gunflint, unidentifiable copper and iron scraps, and sherds of slipware vessels apparently relate to European occupation(s) of the area in the middle to late 18th century.

Faunal Remains

Because of the relatively low soil acidity occasioned by the presence of the large shell masses, refuse bone was well preserved and quite abundant. All osseous material collected during the excavation was submitted for identification and

- PLATE 20 -

HISTORIC ARTIFACTS FROM THE CADWALADER SITE .

1. Gunflint of French flint.
- 2 - 3. Red and yellow slipware sherds.



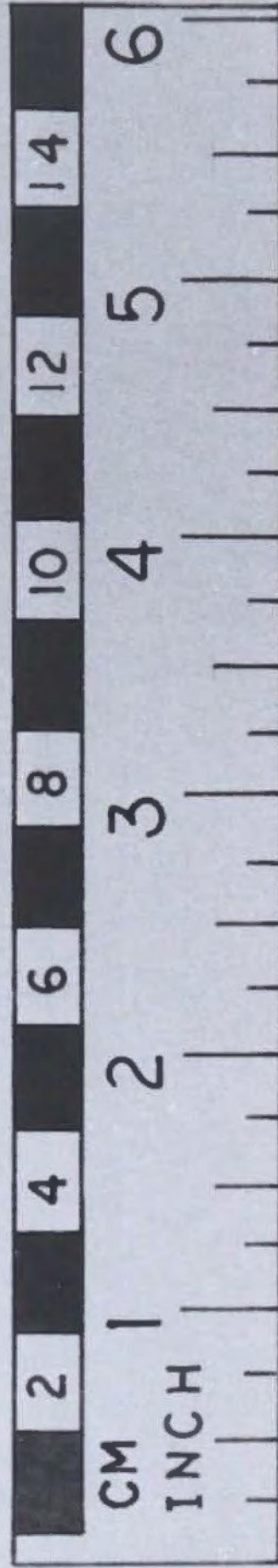
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analysis to Richard S. White, Jr. of Temple University in Philadelphia, Pennsylvania. Mr. White's report is appended below.

#### FAUNAL REMAINS FROM THE CADWALADER SITE

Richard S. White, Jr.  
Anthropology Department  
Temple University

All bone submitted was first cleaned and inked with a provenience number. The bone was then sorted into gross taxonomic groupings without reference to the comparative collection; then each group was determined more carefully with the aid of the literature and a comparative collection.

Two methods of computing the minimum number of individuals represented by a given number of fragments have been used here. The first number of individuals (MNI) is given by the frequency of the most commonly found bone. Thus, if at a given site 23 right humeri of the deer were found as the most common bone from that animal, then 23 would be listed as the MNI. This method was felt to yield too low a MNI since the excavation units were spread over a considerable area, and were not contiguous. Therefore, a second method of computing the MNI was selected, this time considering each separate excavation unit as a separate analytical unit. This time the MNI for each square was computed, then the MNIs for all the squares were added together to arrive at the MNI for the site. This method probably gives a much more accurate estimate of the minimum number of individuals, especially of smaller animals, and especially where there seems to have been horizontal clustering of occupation as is the case at the

Cadwalader site. In any case, both estimates are presented. In addition, a corrected version of the second estimate has also been presented, one which corrects for sex, age and size differences as well. Using the most frequently found bone to estimate the MNI assumes that in the case of a paired bone, all the bones representing the side (right or left) with the lesser number of occurrences are paired with their mate on the opposite side. When this was obviously not so, I have corrected the MNI accordingly.

Faunal lists and notes:

Reptilia:

Turtles constituted a major source of animal protein for the inhabitants of the Cadwalader site. They equal in frequency, but not in amount of meat represented, the white-tailed deer.

Three species of turtle were identified. They were the Northern Diamondback Terrapin (Malaclemys terrapin terrapin), the Common Mud Turtle (Kinosternon subrubrum subrubrum), and the Common Box Turtle (Terrepene carolina carolina).

<u>Species</u>	<u>No. of Bones</u>	<u>Minimum No. of Individuals</u>		
		<u>Method 1</u>	<u>Method 2</u>	<u>Corrected</u>
<u>Malaclemys terrapin</u>	182	2	13	15
<u>Kinosternon subrubrum</u>	3	1	2	2
<u>Terrepene carolina</u>	6	1	3	3

<u>Percentage Total of</u>	
<u>Corrected MNI</u>	
<u>Malaclemys terrapin</u>	75
<u>Kinosternon subrubrum</u>	10
<u>Terrepene carolina</u>	15

Turtle remains from the Cadwalader site.

All three of the above species are active from about April to about September or October, when they hibernate. It seems likely that they were not exploited as a food source during the winter months, since gathering them would have necessitated digging them from near-frozen mud, in very cold water.

Both the mud turtle and the terrapin are commonly found in salt marsh areas such as that surrounding the site today; they are, however, not nearly so abundant as formerly, due to overexploitation during the early part of this century. The box turtle is much more terrestrial, and was probably taken a short distance inland from the site, where fresh water is bordered by open woodland. All three species can be found near the site today.

#### Mammalia:

The white-tailed deer (Odocoileus virginianus) was the most commonly recovered animal at the site. The bones represent at least 1400 pounds of edible meat, the minimum number of individuals being 14. Deer of all ages are represented in the collection; most seem to have been taken in the late summer, fall and winter.

---

Number of bones identified.....	27
Number of teeth identified.....	27
MNI, based on teeth.....	14
Corrected MNI.....	18

---

Deer remains from the Cadwalader site.

Deer bone and antler were used for a number of the tools

recovered from the site. Deer antler was used for making awls, perforators and a needle. Deer long-bone splinters were used for making awls and perforators.

Other mammals represented at the Cadwalader site are the beaver (Castor fiber), the domestic dog (Canis familiaris), the grey fox (Urocyon cinereoargenteus), the skunk (Mephitis mephitis), and an unidentified rodent probably not used as a source of food. All of these animals could have been taken at any time during the year, and therefore provide no evidence of a seasonal occupation of the site.

#### Aves:

At least three species of birds are represented by the bones from the Cadwalader site. Although these have not been specifically identified, they are all larger migratory waterfowl. This would suggest a fall and spring occupation of the site. At least 23 individuals are represented, constituting a major part of the meat protein intake of the inhabitants of Cadwalader site.

#### Pisces:

Only three bones identified as from fish were recovered at the site, and none was identifiable as to the species represented. Fish seems to have been of minor importance in the diet.

#### Conclusions:

The inhabitants of the Cadwalader site obtained an appreciable part of their diet from shellfish, birds, mammals and reptiles from the immediate vicinity of the site. The area then was much the same environmentally as it is today.



Shellfish may have formed the major portion of the diet by volume, but due to its relatively low caloric value, was exceeded in importance by other meat proteins, notably deer, turtle and birds. Turtle meat is very rich in fats and oils and is therefore of higher caloric and nutritional value than shellfish; deer meat and bird meat are likewise richer than is shellfish meat. Other animal foods were sometimes eaten, such as beaver, dog and fox; but they were not important staples in the diet.

The evidence from the Cadwalader site suggests that the site was occupied during most of the year; if any abandonment occurred, it must have been during the dead of winter, when the inhabitants may have moved out of the bitter cold salt marshes and into the pine woods where more deer would have been available, as well as better protection from cold winter winds.

### Interpretations

The Cadwalader site is a small coastal station probably relating to seasonal occupation by a single Early Woodland population. The excavation of this closed component yielded a small assemblage of typical Early Woodland artifacts which forms the core of the Cadwalader complex, viz., flat-bottom Cadwalader Corded and Heislerville Corded pottery, broad side-notched points, the plano-convex chopper, the small triangular scraper, utilized flakes, and notched netsinkers, bone awls, and conical projectile points

and a netting needle of antler. Other consonant material traits were added to this complex as a result of our excavation of the Cadwalader Annex site and an examination of the archaeological collection from the East Point site.

The expected appearance of the Cadwalader complex about 750 B.C. is contradicted by the sole C-14 age determination from this site. The date of 940 A.D. ± 95 years (I-6731), resulting from the analysis of a refuse bone sample, is deemed far too recent to apply to the Cadwalader complex. The absence of a more recent occupation here precludes the possibility that this date might pertain to a later culture. The causes for this excessive discrepancy are unclear, but the skewing of the results toward a more modern estimate suggests the possibility of sample contamination.

In any case the Cadwalader assemblage has many traits linking it to an Early Woodland position both in culture and chronology. The ceramics in particular clearly belong to a class of early flat-bottom wares found throughout the East. As explained anon in greater detail the Cadwalader pottery seems to arise from the coalescence of the two predominant Early Woodland ceramic traditions in the Northeast, namely, the Marcey Creek and the Vinette 1 traditions, both of which first appear about 1000 B.C. (Ritchie 1969:85-86; Gardner and McNett 1971:43).

The Early Woodland position of the Cadwalader assemblage is further illustrated by the presence of broad-bladed, side-notched points of a nondescript style which is widely distri-

buted throughout the East during Early Woodland times although its significance as a cultural or chronological marker has often been overlooked.

The presence of these small points attests to the importance of hunting in the food quest of the Cadwalader people as does perhaps even more clearly, the abundance of bone refuse in the midden deposits. The fact that turtles and waterfowl were taken in some numbers in addition to deer implies that hunting involved also the use of nets, snares, or other traps or simply the fortuitous collection of available creatures. It is interesting to note the presence of the domestic dog which probably served as a camp scavenger, possibly as a hunter's companion, and evidently as food. Gathering eggs, seeds, and berries in season was undoubtedly a common practice although no archaeological evidence to this effect has survived. The seemingly negligible role of fishing in the lives of these riparian folk is an enigma which cannot be adequately accounted for with the data at hand.

The extensive midden deposits of refuse oyster shell are not unexpected features of this coastal site. The apparent preference for oysters in the shell spreads, to the virtual exclusion of other molluscs, indicates a pattern of differential collection based upon the natural distribution of oysters in the lower river and bay. Since oyster require relatively fresh water, they can be harvested nearby in the river and bay, whereas the collection of clams would

require a journey of ten or more miles under present conditions. Moreover, a decline in sea level of even a few feet would cause the shoreline of the relatively shallow Delaware Bay to migrate several miles seaward from its present location, hence, greatly magnifying the difficulty of gathering clams (Cf. Stuiver and Daddario 1963; Shepard 1964; Newman and Rusnak 1965).

The large masses of oyster shells have tended to neutralize the soil acidity, and this condition has proven favorable to the preservation of bone and antler implements, from which can be inferred some of the activities of their makers and users. The discovery of the cut antler tine and a conical antler projectile point provides further evidence of hunting while bone awls suggest the manufacture of hide clothing and skin or bark containers or shelters. Nets, probably for fishing, were doubtless made with the aid of large needles such as the one illustrated in Plate 19. In addition the possession of cord and coarse fabric is demonstrated by the impressions recorded on ceramic vessels.

Beyond this very incomplete reconstruction of a simple material culture and some basic economic activities, little can be said of the aboriginal inhabitants of the Cadwalader site. It seems most likely that they comprised nuclear or small extended family groups whose visits to the site were limited to the warm months when oysters and various other creatures such as turtles could be conveniently harvested. The site would not lend itself to winter occupa-

tion because of its exposed situation in the salt marsh and the lack of collectable subsistence commodities at that time of year. Undoubtedly the aboriginal Cadwalader people weathered the winter months in the sheltered wooded knolls upstream along the river as at Indian Head where their scattered vestiges have also been recorded.

## THE CADWALADER ANNEX SITE

### Introduction

The Cadwalader Annex site is part of the Cadwalader Public Hunting and Fishing Ground. The excavations here were pursuant to the agreement previously made with the New Jersey Division of Fish, Game, and Shell Fisheries as regards the Cadwalader site.

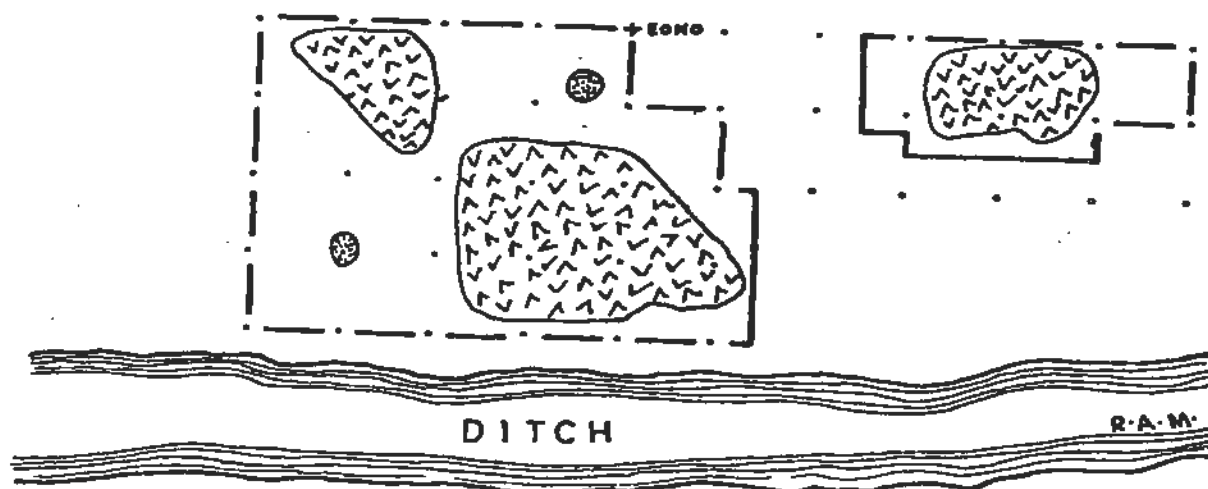
The site occupies a low eminence on the southern tip of the upland land mass bordering the salt meadow about two miles northeast of the lighthouse at East Point (Map 5). The surface of the site is generally similar to that described for the Cadwalader site (p. 61 ). The site, when first explored, was covered by white cedar, poison ivy, and Indian grass.

In its natural state the site probably encompassed a minimum of ten thousand square feet. Presently, both the East Point-Heislerville Road and a drainage ditch transect the site, and owing to these modern disturbances, the workable area of the site has been much reduced. The presence of the drainage ditch in particular caused problems for excavation since the ditch allowed the ready infiltration of water from the adjacent meadow. At times of exceptionally high tide the site was flooded within a few inches of the surface.

Perry Brett discovered the site in April of 1972 and testing later that month revealed the possibility of defining at least two undisturbed buried components. The excavation

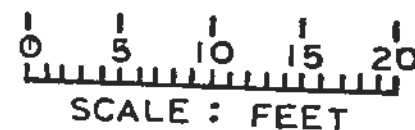
EAST POINT — HEISLERVILLE ROAD

MAP 5



LEGEND

- SHELL SPREAD
- FEATURE



CADWALADER ANNEX SITE

EXCAVATIONS of 1972

of the site was conducted intermittently during the period of April to July 1972 because of inclement weather and concomitant inundation. In all more than 24 five-foot sections were excavated.

### Stratigraphy

The natural stratigraphy at the Cadwalader Annex site duplicates in all essential particulars the soil profile at the Cadwalader site, i.e., a narrow humus band underlain by yellow dune sand (Plate 21).

Again, the tests of soil chemistry were performed by S.J. Toth whose findings are reported below:

<u>Sample</u>	<u>pH</u>	<u>Organic Matter</u>
Humus	4.3	5.04%
Yellow Sand	6.0	0.14

The soil samples indicate a somewhat greater acidity here than at the Cadwalader site, and this unexplained difference is noticeable in the relative lack of well preserved refuse bone.

The material excavated from the Cadwalader Annex site duplicates the Early Woodland assemblage from the Cadwalader site and adds information on two distinct Late Archaic components as briefly recapitulated in the following paragraphs.

In the upper humus and on the surface occurred a scattering of Riggins Fabric Impressed sherds and modern artifacts, providing scant evidence of infrequent, non-intensive visitation by Late Woodland aboriginal and modern groups.

The predominant occupation is attributable to the same



- PLATE 21 -

PROFILE AT THE CADWALADER ANNEX SITE SHOWING  
CUT THROUGH ABORIGINAL SHELL DEPOSIT.

Note how shell deposit follows natural  
hummocky ground surface.

A black and white photograph of an archaeological profile. A vertical scale bar with alternating black and white segments is positioned on the left side of the profile. A label with white text on a black background is placed in the center of the profile. The profile shows a cross-section of the ground with various layers and textures. A rainbow-like light artifact is visible on the left edge of the image.

CADWALADER  
ANNEX  
PROFILE  
EO S20  
MAY. 2 '72

Early Woodland people whose vestiges were recovered at the Cadwalader site. The Early Woodland remains at the Cadwalader Annex site include crude flat-bottom and conoidal ceramic vessels; broad-bladed, side-notched points; refuse bone; and irregular spreads of oyster shell.

Beneath these shell beds and vertically separated from them by a few inches of virtually sterile sand are found small contracting-stemmed projectile points confirmed by Ritchie (personal communication) as examples of the Rossville type. These points occur without associated artifacts save for an occasional sherd, apparently intrusive from above.

Deeper than the Rossville points are square-stemmed points resembling the Bare Island type. The implications of these discoveries and their placement within the site will be discussed later on.

### Features

A surface inspection of the site indicated the presence of at least five large shell spreads, three of which were completely explored. These undesignated features correspond in all respects to the shell middens on the Cadwalader site (p. 68). Two other features, receiving specific designations, were also encountered.

Feature 1 was discovered in section E10S15 and extended part way into E15S15. It appears to have been a pit or other ancient disturbance of irregular shape in plan and basin-shaped in cross section. The approximate size was two feet by one and one-half feet with the long axis running east and

west. The overall depth from the orifice at the base of the humus measured about six inches. The fill graded almost imperceptibly in color from yellow at the perimeter to cocoa-brown in the center. A second disturbance, circular in outline and measuring about ten inches in diameter, appeared in the center of the feature. Throughout the pit were found fragmentary oyster shells, a few small pieces of wood charcoal, and tiny sherds of the soft, red Cadwalader Corded pottery. The function of this feature is unknown unless, perhaps, it served as a small hearth.

Feature 2 proved to be a small circular pit about 23 inches in oral diameter, opening about six inches beneath the humus in section EOS5. The walls sloped gently inward to a flat bottom about 20 inches in diameter. The maximum depth from orifice to bottom was five inches. It is possible that this pit was originally deeper but that the upper portion was truncated before being recognized, since the fill was only slightly darker than the surrounding subsoil. The fill contained only a few Cadwalader Corded sherds and fragmentary oyster shells. The artifacts discovered during our investigations are described below.

### Artifacts

#### Stone Artifacts

Two side-notched points comparable in form, cultural affinity and chronological placement to those at the Cadwalader site (p. 69) were found in the shell masses at the Cadwalader Annex site along with two scraping tools of jasper and quartz

chips, and a crudely chipped shale object of unknown function. Beneath them occurred the Rossville points, and deeper still, the two Bare Island points referred to above.

Rossville Points (Cf. Ritchie 1961:46; Plate 22, Figs. 4-7).

Summary Description: Small, narrow points with contracting stems.

Form: (1) Blade: Isosceles triangular in outline; lenticular to biconvex in cross section.  
 (2) Base: Rounded or pointed.  
 (3) Shoulders: Rudimentary to well defined.  
 (4) Stem: Small contracting stem, roughly equilateral triangular in form, terminating in a rounded or pointed base.

Size: (1) Length: 1" - 1-1/2"  
 (2) Width: 9/16" - 3/4"  
 (3) Thickness: 1/4" - 3/8"

Proportions: About 1-3/4 to 2 times as long as wide. Stem accounts for 1/4 to 1/6 of the overall length.

Manufacture: Percussion flaking.

Material: Local chert, quartzite and jasper.

Frequency: 4

Comment: This point style represents the local adaptation of the Possville point (Cf. Ritchie 1961:46). The principle difference is in the generally smaller size of the Maurice River specimens; also the classic "lozenge-shaped" form is rare here. These points occur in a pre-ceramic or very early ceramic context at the Cadwalader Annex site where they are found several inches deeper than the pottery. A few sherds have been found as deep as the Rossville points, but without convincing associations. The Rossville points are superimposed upon Bare Island points. Similar contracting-stemmed points are found from New England at least to coastal Virginia and perhaps farther south,

- PLATE 22 -

CHIPPED STONE ARTIFACTS FROM THE  
CADWALADER ANNEX SITE.

- 1 - 3. Cadwalader Side-Notched points.
- 2. Number 2 modified for scraping.
- 4 - 7. Rossville points.
- 8, 10. Bare Island points.
- 9. Side scraper.

Material:

- 1, 3. Exotic jasper.
- 2. Exotic chalcedony.
- 4 - 6. Local pebble jasper.
- 7. Cohansey quartzite.
- 8. Shale.
- 9. Chert (?).
- 10. Argillite.





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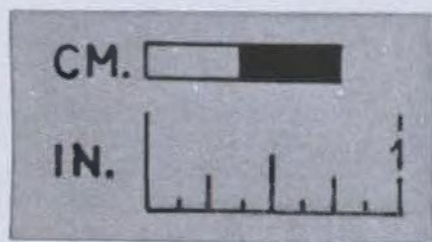
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- PLATE 23 -

CADWALADER CORDED SHERDS FROM THE  
CADWALADER ANNEX SITE.

1 - 2. Exterior.

3 - 4. Interior.





1



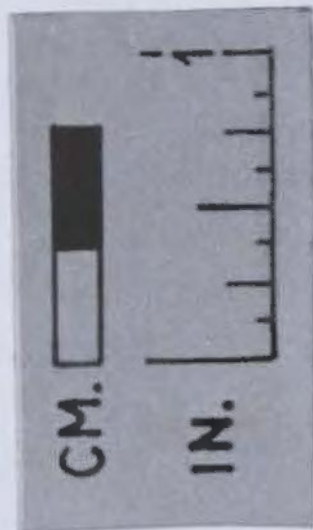
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Antecedent types are as yet unrecognized in context but probably include the morphologically similar Poplar Island point.

Bare Island Points (Cf. Ritchie 1961:14-15; Plate 22, Figs. 8,10).

Summary Description: Large, narrow, square-stemmed points.

Form: (1) Blade: Isosceles triangular in outline; biconvex to oval in cross section.  
(2) Base: Square to rectangular.

Size: (1) Length:  $2\frac{1}{4}$ " - 3"  
(2) Width:  $\frac{3}{4}$ " - 1"  
(3) Thickness:  $\frac{5}{16}$ " -  $\frac{1}{2}$ "

Proportions: About three times as long as wide.

Manufacture: Percussion flaking.

Material: Argillite and shale.

Frequency: 2

Comment: These two points fall within the range of variation of Bare Island points (Ritchie 1961:14-15) and would seem to indicate a distinct Late Archaic component relating to the Bare Island complex (Kinsey 1959:129).

Whetstone (Plate 24, Fig. 2).

Summary Description: A small, flat, rectanguloid pebble of schistose sandstone with a broad, deep, abraded trough.

Size (1) Length:  $1\frac{3}{4}$ "  
(2) Width:  $1\frac{1}{4}$ "  
(3) Thickness:  $\frac{3}{8}$ "

Comment: A sharpening stone for an object with a relatively broad, flat bit.

Mulling Stone (Plate 24, Fig. 3).

Summary Description: A flat, pyriform cobble showing abrasion on the basal and apical edges.

Size: (1) Length:  $3\frac{1}{2}$ "  
(2) Width: 3"  
(3) Thickness:  $1\frac{1}{4}$ "

- PLATE 24 -

ROUGH STONE ARTIFACTS FROM THE  
CADWALADER ANNEX SITE .

1. Chipped object of unknown function.
2. Pebble whetstone.
3. Mulling stone. Note abraded basal and  
apical surfaces.

Material:

1. Shale.
2. Schistose sandstone.
3. Sandstone.



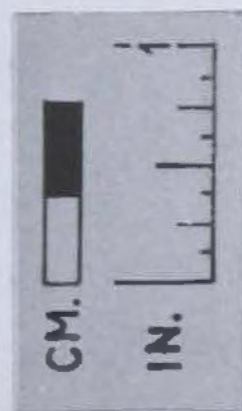
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Comment: The object shows considerable wear resulting from apparently long use as a pounding instrument, possibly in preparing crushed shell as pottery temper.

#### Bone and Antler Tools

Antler Flaker: Owing in part to the lower pH (more acid) soil conditions of the Cadwalader Annex soil, organic preservation did not equal that at the Cadwalader site and only one recognized antler tool survived. This implement is a rather large, naturally shed deer antler, unmodified except for battering on the extreme proximal end as a result of use as a baton for percussion flaking of flint (White, personal communication).

#### Shell Tools

Shell Scrapers (Plate 25): The use of shell scrapers was brought to light as a result of the investigations at the Cadwalader Annex site. All three such tools are fashioned from fragmentary valves of the hard shell clam (Mercenaria mercenaria). Their edges are notched and striated from use as scraping tools. These specimens were recovered from the largest excavated shell spread at the site and are, therefore, considered as traits of the Early Woodland Cadwalader manifestation.

- PLATE 25 -

CLAM SHELL TOOLS FROM THE CADWALADER  
ANNEX SITE.

Note notched and striated edges.





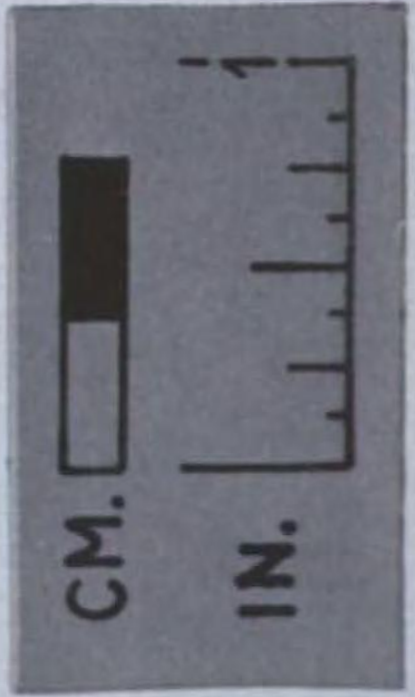
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### Faunal Remains

The faunal remains collected at the Cadwalader Annex site show no qualitative difference from those of the Cadwalader site, nor is any difference to be expected since the surviving refuse accumulations in both instances are attributable to the same Early Woodland group. The inferences regarding food preferences and seasonality of occupation at the Cadwalader site obtain equally as well here.

### Interpretations

The cultural remains at the Cadwalader Annex site represent warm weather habitations, apparently by four distinct aboriginal groups whose occupations of the site were independent and temporally disparate events.

The most recent aboriginal visitors to the Cadwalader Annex site were bearers of the Late Woodland Riggins Fabric-Imprinted pottery which was found in a thin surface scatter on the site. The dominant occupation was by the same Early Woodland group whose artifacts were recovered from the shell spreads at the Cadwalader site. The significance of their vestiges has already been assessed (pp.86-90 ).

The Early Woodland use of the site was preceded by two Late Archaic occupations, represented solely by their distinctive projectile points. The later of these two occupations is marked by the presence of four Rossville points, all of local materials, within the 9" - 14" depth range at the



site. The points were found in isolation, without clear associations.

The Rossville point type has been recorded as an element in the Early Woodland manifestations on Martha's Vineyard in association with Lagoon points, crude side-notched points and Vinette 1 pottery (Ritchie 1969:225). A similar context for Rossville points is expressed in Kinsey's (1972:364-69) Middle Woodland Bushkill complex in the upper Delaware valley. In this complex are included Roseville, Lagoon, and generalized side-notched points along with Vinette 1 and other pottery. However, at the Cadwalader Annex site the Rossville points do not seem to fall into this kind of configuration. On the one hand the vertical separation of the Rossville points from the superincumbent Early Woodland material suggests independent origins, and on the other the lithic preferences of the two are at marked variance. All of the Cadwalader Annex Rossville points were manufactured from locally available jaspers or quartzite while the side-notched points were fashioned from exotic materials. Moreover, this distinction obtains in all collections from the Maurice River drainage. Thus the inclusion of the Rossville points in a conglomerated complex does not seem warranted here. The scant evidence points rather to their status as a separate and prior entity. It may well be that the Rossville points enjoy an early emergence in southern New Jersey as a result of their relative proximity to the suspected point of origin in the Chesapeake Bay area (Ritchie 1961:46), but this postulation

remains to be adequately tested.

The discovery of two Bare Island points beneath the Rossville horizon suggests the presence of a second Late Archaic component. Certainly the artifacts are distinct in form and material, but the data are insufficient for an in-depth evaluation of these finds. Some relationship to Kinsey's (1959) Bare Island complex or the more inclusive Delaware Valley Archaic complex (Kinsey 1972:337) is suspected. Such placement would be culturally and chronologically consonant with the other Cadwalader Annex finds, although grounded more in intuition at this point than in observable fact.

### PREVIOUSLY INVESTIGATED SITES

In order to supplement the data derived from the primary research just described, the records relating to a number of previously investigated Maurice River sites are examined below. Two of the sites, East Point and Indian Head, were excavated as projects of the Indian Site Survey in 1939-40 (Cross 1941:41-47). The following reports of these sites are based in part on Cross's accounts and also upon recent examination of the pertinent collections in the New Jersey State Museum in Trenton, N. J. Where discrepancy arises between the excavation records and the existing collections - especially with respect to the descriptive and quantitative aspects of the artifacts - the collections are taken as correct.

Recent discoveries relating to four loci of aboriginal habitation, brought to light at Union Lake (Mounier 1972), and the synthesis of data from these sites will also be included in the present review.

The artifacts from these various collections can be cautiously used to considerable advantage as evidence for filling the gaps in the postulated cultural sequence and for plotting the distributions of known traits. Unfortunately, the foundations of such evidence rest more in typological considerations than in firm stratigraphic context, and the inadequate provenience data serve to inhibit the ability to define or correlate significant cultural phases or to incorporate single elements into relevant complexes.

Luckily, the artifacts are often of sufficiently distinctive form to allow their placement, with some certainty, within relatively restricted cultural and chronological limits on the basis of typology. The hazards of this approach are well known and only reluctantly resorted to in this instance. However, it is hoped that this restrained use of typological comparison will result in a fuller and more lucid picture of the prehistoric cultural developments here than would otherwise be possible.

## THE EAST POINT SITE

(Cf. Cross 1941:41-44)

### Introduction

The East Point site is located on Donnelly Island, a small stabilized sand dune, situated in the salt meadow about 800 feet north of the Delaware Bay (Map 1). The site was first discovered in April, 1939 when workmen excavating a road cut through the island inadvertently exposed four human skeletons. The Indian Site Survey excavated at the site on two separate days in April and May, 1939 and opened an area of 1,650 square feet (Plate 27).

### Stratigraphy

The Indian Site Survey explorations disclosed a layer of black humus averaging fifteen inches thick, underlain by a light yellow sand. This profile is comparable to the sequence of strata already outlined for the nearby Cadwalader and Cadwalader Annex sites.

### Features

Cross records a total of five large refuse- and charcoal-filled pits averaging about six feet in diameter by four feet deep. All of the pits apparently opened from the humus and three contained pottery in addition to oyster shell and animal bones.

The sole remaining feature unearthed in the Indian Site Survey excavations comprises several fragments of a single human cranium. As with the four burials previously noted,

- PLATE 26 -

GENERAL VIEW OF THE EAST POINT SITE.

(New Jersey State Museum photograph).



- PLATE 27 -

INDIAN SITE SURVEY EXCAVATIONS AT  
THE EAST POINT SITE, 1939.

(New Jersey State Museum photograph)





data are lacking with respect to the provenience and the artifacts, if any, associated with this inhumation. There is no record of a grave fossa or possible mode of interment.

### Artifacts

The cultural remains from the East Point site manifest a close relationship to the assemblages from the neighboring Cadwalader and Cadwalader Annex sites. Unfortunately, while the absolute horizontal and vertical position of the East Point artifacts was recorded, their exact provenience relative to specific strata was not noted, and the inter-site correlation of components is thereby hindered. The relationships as suggested by the artifacts are explicated below (pp. 116-18).

### Stone Artifacts

The inventory of stone artifacts from the East Point site as classified by the writer is presented in tabular form below:

<u>Projectile Points</u>	<u>f</u>
Triangular	4
Orient Fishtail	1
Susquehanna Broad	1
Rossville	2
Preforms/broken	8
<u>Drills</u>	
Modified Rossville Pt.	1
<u>Scrapers</u>	
End scraper	1
Utilized flakes	2
<u>Rough Stone</u>	
Full grooved axe	1
Pecked roller pestle	1
Unpitted hammerstones	2
Notched netsinker	1
<u>Polished Stone</u>	
Rectanguloid gorget	1

- PLATE 28 -

STONE ARTIFACTS FROM THE EAST POINT SITE.

- 1, 3. Triangular points.
2. Triangular end scraper.
4. Susquehanna Broad point.
5. Orient Fishtail point.
6. Fragmentary stemmed or notched point.
- 7, 9. Rossville points.
8. Modified Rossville point drill.
10. Fragmentary gorget.
11. Notched netsinker.

Material:

- 1 - 3. Chert.
- 4 - 5. Cohansey quartzite.
7. Quartz.
- 8 - 9. Local pebble jasper.
10. Red slate.
11. Sandstone.





Pottery

The following ceramic types are represented in the East Point collection:

<u>Type</u>	<u>f - sherds</u>
Riggins Fabric Impressed	39
Riggins Plain	5
Fralinger Corded	15
Cadwalader Corded	103
Heislerville Corded	43
Vinette 1	13
Marcey Creek Plain	4

In addition the following heretofore undefined forms were noted in examining the collection.

Coarse Fabric Impressed

Paste: (1) Temper: Small shell particles up to 1/16" in diameter and red ochre up to 1/8" in diameter.  
 (2) Hardness: 2  
 (3) Texture: Coarse and porous, with a chalky feel.  
 (4) Color: Pale earthy yellow.

Firing: Incomplete oxidation.

Manufacture: Coiling.

Surface Treatment:

- (1) Exterior: Impressed with a coarse open twined fabric.
- (2) Interior: Smoothed.

Decoration: None.

Form: Indeterminate.

Size: (1) Thickness: 1/4" - 3/8"  
 (2) Capacity: Indeterminate

Frequency: 39 sherds

Comment: Since precise provenience within the site is unclear, age and cultural affinities of these sherds remain unknown.

- PLATE 29 -

POTTERY FROM THE EAST POINT SITE.

(New Jersey State Museum photograph)

- 1, 4, 5, 7 - 10. Cord-marked pottery resembling  
the Cadwalader Corded type.  
Note cord-marked interiors  
of numbers 8 and 9.
2. Flat basal sherd showing mat  
impressions.
3. Cord-decorated sherd.
6. Riggins Fabric Impressed (?).





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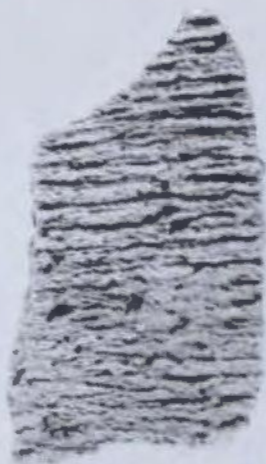
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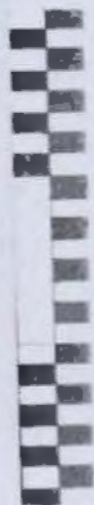
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Coarse Plain

Paste: (1) Temper: Very fine grit and crushed shell.  
 (2) Hardness: 2  
 (3) Texture: Coarse and porous.  
 (4) Color: Pale earthy yellow to tan.

Firing: Incomplete oxidation.

Manufacturing: Modeling.

Surface Treatment:

- (1) Exterior: Smooth.
- (2) Interior: Smooth.

Decoration: None.

Form: Flat-bottom with basal "heels".

Size: (1) Thickness: 3/8" - 1/2"  
 (2) Capacity: Indeterminate.

Frequency: 26 sherds.

Comment: Apparently related to the Cadwalader and Heislerville Corded pottery of Early Woodland age, with comparable regional affinities.

Faunal Remains

Although an undoubtedly broad spectrum of faunal remains was once in evidence at the East Point site, only oyster shells and "animal bones" are referred to in the excavation report. If any such material was collected, which seems unlikely, it has been long since discarded. Only a handful of oyster shells remains in the State Museum collections. A re-investigation of the site would probably duplicate the faunal lists already established for the Cadwalader and Cadwalader Annex sites (pp. 82-86).

Interpretations

The exiguous evidence of Late Archaic, Early Woodland and Late Woodland habitations at East Point augments the occu-



pational record from the Cadwalader and Cadwalader Annex sites. The sequence of occupations at East Point, so far as it can be discerned, is recounted below, in reverse order.

A few sherds of Riggins ware pottery and the undoubtedly coeval triangular points provide the sole evidence of the late woodland use of the site, which seemingly duplicates the diffuse occupation of the Cadwalader Annex site at approximately the same time.

The most intensive occupation of the East Point site correlates with the Early Woodland Cadwalader material, particularly as indicated by the preponderance of Cadwalader Corded pottery at this station. So far as is known, the association of side-notched points and Cadwalader Corded ceramics has not been documented at East Point.

The discovery of a Susquehanna Broad point and an Orient Fishtail point (cf. Ritchie 1961:46,53-53) marks the presence of the Susquehanna tradition of Late Archaic age. Witthoft (1953) and Ritchie (1965:149-53) employ the term "Transitional" for this manifestation, but since the primary criterion for this definition is technological and arbitrary rather than social - i.e., the use of soapstone vessels vis a vis perishable or ceramic containers - I would consider this rubric inappropriate. In any event the occurrence here of elements of the Susquehanna tradition is interesting and significant in that it adds another unit to the recorded cultural succession in this area, and further, illuminates the extension of this tradition into the Maurice River drainage.

The terminal Archaic finds probable expression in two

Rossville points and a modified Rossville point drill. Unfortunately, the records are insufficient to allow explication of former associations and whether the Rossville points relate to an Early Woodland complex or to a separate, and somewhat earlier, horizon cannot be determined. I would favor the latter view for reasons already enumerated (p.105).

As far as can be determined from the excavation records the vertical distribution of the various point types falls into the following pattern. Rossville points show the deepest occurrence, followed by the Susquehanna Broad and Orient Fishtail points. Triangular points exhibit the shallowest distribution as anticipated. The frequency and distribution of point types at various depth is, to be sure, statistically insignificant. Moreover, the associations or co-variance of features, strata, and artifacts of different classes is beyond positive reconstruction. Therefore, data from this site must be considered suggestive rather than conclusive, but seem to be consonant with our more rigidly controlled Cadwalader and Cadwalader Annex site data.

THE INDIAN HEAD SITE

(Cf. Cross 1941:44-47)

Introduction

The Indian Head site is located along the west bank of the Maurice River near its confluence with the tributary Muddy Run (Map 1). The site, owned by the Millville Manufacturing Company, is situated along a wooded bluff that rises about twenty-five feet above the level of the river which at this point, about one and one-half miles above the natural head of tidewater, is much narrower than further downstream and meanders through dense swamps of cedar and magnolia. The upland growth is composed mainly of pitch pine and short leaf yellow pine.

The location has long been known as a focal point of intense autochthonous habitation (Spier 1915:98) and has witnessed a series of equally intensive excavations including several authorized investigations as well as innumerable clandestine and desultory probings by amateur collectors. The booty from this once productive site forms the nucleus of many a local collection.

The principal systematic exploration of the site was undertaken during the spring of 1940 by the Indian Site Survey whose crews turned more than 11,250 cubic feet of sand in the two-month long excavation. Cross's (1941:44-47) report of that investigation and the collection thereby amassed provide the foundations for this review.

The primary obstacle presented by the Indian Head material lies in the lack of sound provenience data. The Indian Site Survey excavation catalogues record the position of artifacts horizontally by triangulation and vertically by absolute depth, but the seemingly erratic distribution of many artifact types along with the absolute lack of stratigraphy obfuscates explication of their original cultural context. Hence, this material can only be considered for the present purposes, as a surface collection and because the inferences that can be derived therefrom are necessarily limited, only selected examples with probable bearing on the proposed cultural sequence will be discussed in detail.

#### Features

Only one feature was discovered, that being a cache of eleven argillite blanks.

#### Artifacts

The complete inventory of the artifacts collected in the Indian Site Survey excavations at the Indian Head site is listed below according to identifications made by the writer.

<u>Projectile Points</u>	<u>f</u>
Triangular	
Madison <sup>1</sup>	50
Levanna <sup>1</sup>	11
Squibnocket (?) <sup>1</sup>	1

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<sup>1</sup>Ritchie 1971

Broad Square-Stemmed	
Koens-Crispin/Lehigh <sup>1</sup>	62
Mansion Inn (?) <sup>2</sup>	8
Stanly Stemmed <sup>3</sup>	2
Narrow Square-Stemmed	
Wading River <sup>4</sup>	6
Bare Island <sup>4</sup>	2
Contracting-Stemmed	
Poplar Island <sup>4</sup>	31
Rossville <sup>4</sup>	20
Squibnocket Stemmed (?) <sup>4</sup>	2
Fishtail <sup>4</sup>	7
Side-Notched	
Wayland Notched (?) <sup>2</sup>	9
Cadwalader Side-Notched	5
Otter Creek <sup>4</sup>	1
Corner-Notched	
Vosburg <sup>4</sup>	9
Jack's Reef <sup>4</sup>	1
Kirk Corner-Notched <sup>3</sup>	1
Base-Notched (Eva/Bshback) <sup>1</sup>	2
Convex-base	4
Bifurcate-base (LeCroy) <sup>5</sup>	2
Preforms (cached)	11
Miscellaneous	16
 <u>Scrapers</u>	
End scrapers	19
Side scrapers	5
Reworked points	2

<sup>1</sup>Kinsey 1972<sup>2</sup>Dincauze 1968<sup>3</sup>Coe 1964<sup>4</sup>Ritchie 1971<sup>5</sup>Broyles 1966

## - PLATE 30 -

## PROJECTILE POINTS FROM THE INDIAN HEAD SITE .

- 1 - 4. Triangular points .
- 5 - 6. Cadwalader Side-Notched points .
- 7 - 9. Mansion Inn/Wayland Notched points (?) .
- 10 - 15. Rossville points .
- 16 - 17. Poplar Island- or Morrow Mountain II-  
like points .
- 18 - 20. Koens-Crispin/Lehigh points .
- 21. Kirk Corner-Notched point .
- 22. Vosburg point (?) .
- 23. Stanly Stemmed point (tip and base broken) .
- 24 - 25. Bifurcate base points (Le Croy ?) .

## Material:

- 1 - 4, 12, 16, 17, 21. Cohansey quartzite.
- 5, 7, 8, 11, 18. Argillite.
- 6, 22. Quartzite .
- 13, 23, 24. Jasper.
- 25. quartz.



- PLATE 31 -

SCRAPERS AND DRILLS FROM THE INDIAN HEAD SITE.

(New Jersey State Museum photograph)

- 1, 3. Modified point scrapers.
- 2, 10. Modified point drills.
- 4 - 9, 11, 12. Scrapers.

Material:

- 1, 4 - 8, 11, 12. Jasper.
- 2, 3. Argillite.
- 9. Quartzite.
- 10. Banded chert (?)





3



6



11



10



5



9



8



4



7



12



Drills

Modified points	3
-----------------	---

Rough Stone

Celt (chipped)	1
Pestles	2
Abraders	2
Pitted hammerstones	3
Unpitted hammerstones	8

Ground or Polished Stone, etc.

3/4 grooved axe	1
Full grooved axes	2
Semi-lunar atlatl weight	1
Steatite sherds	4

Pottery

Riggins Fabric-Imprinted	148
Riggins Plain	68
Fralinger Corded	172
Union Lake Corded	187
Indian Head Incised	2
Cadwalader Corded	26
Heislerville Corded	7
Ware Plain	56
Net-Imprinted (?)	3

Pipes

Indian Head Incised (form unknown)	2
Shell-tempered platform (fragment)	1

Interpretations

The Indian Head site shows a wide range of artifact types, apparently the vestiges of frequent sojourns by aboriginal groups over the course of many millenia. The evidence to differentiate discrete occupations is not iron-clad, failing any demonstrable stratigraphic context or clear associations.

- PLATE 32 -

RIGGINS FABRIC-IMPRESSED POTTERY FROM  
THE INDIAN HEAD SITE.

(New Jersey State Museum photograph)



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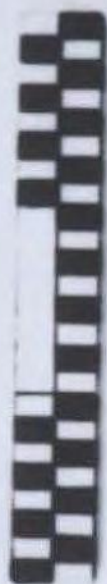
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- PLATE 33 -

POTTERY FROM THE INDIAN HEAD SITE.

(New Jersey State Museum photograph)

1 - 7, 9. Riggins Fabric Impressed.

8. Cord-marked.



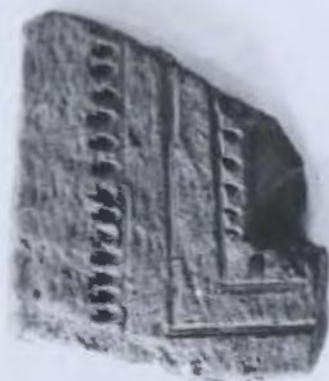
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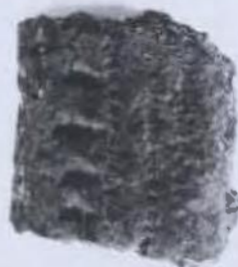
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- PLATE 34 -

POTTERY AND PIPE FRAGMENTS FROM

THE INDIAN HEAD SITE.

(New Jersey State Museum photograph)

1 - 4, 7. Indian Head Incised.

8. Fragmentary pipe bowls.





3



7



4



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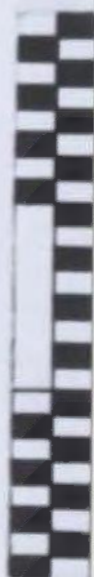
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The most recent aboriginal occupations of the site undoubtedly relate to Late Woodland times, with the probable use of triangular points along with ceramics of the following types: Riggins Fabric-Imprinted and Plain, Fralinger Corded, Union Lake Corded, and Indian Head Incised. The dating for the Late Woodland here is insecure, probably spanning the last few centuries before the European settlement of the area.

Much of the pottery would seem to be intermediate in paste, thickness, and surface treatment between the Late Woodland Fralinger Corded and the Early Woodland Cadwalader Corded ware, and this vague intermediate category probably embraces the Middle Woodland ceramics of the site. A large platform pipe fragment of shell-tempered paste in the Charles F. Kier, Jr. collection probably also belongs in a Middle Woodland congeries. Related projectile point forms or other Middle Woodland artifacts are presently unknown unless, perhaps, the few convex-base points (Cross 1956:185) and net-impressed (?) sherds could be so designated.

The Early Woodland, to judge from analogous materials from our Delaware Bay sites, is characterized by the presence of generalized side-notched points, Cadwalader Corded, Heislerville Corded, and Ware Plain ceramics. The record does not indicate an intense Early Woodland occupation, and it seems likely that the Indian Head site was the locus of winter encampments of the same people who inhabited the Cadwalader and Cadwalader Annex sites.

The Late Archaic Susquehanna tradition is represented by a number of genetically related components, evinced solely by distinctive projectile point forms, among which are the Orient Fishtail (Ritchie 1961:39) and Koens-Crispin/Lehigh Broad types (Kinsey 1972:423-26) as well as a few points which seem to reflect intermediate development between the Orient Fishtail and Susquehanna Broad types. These last correspond to Dincauze's (1968:26) Dudley and Coburn varieties of Wayland Notched points, Werner's (1972:117-22) Dry Brook Fishtail points, or the unnamed specimens of intermediate form from New York State (Ritchie 1959:90). Their discovery here is of more than passing interest since another surface collected series of such points has been isolated a short distance down river at Union Lake (p.147).

Other undifferentiated Late Archaic manifestations with suspected austral affinities are characterized by Bare Island, Wading River, Poplar Island and Rossville points, while an earlier diffusion from the north has resulted in the deposition of a few relics referable to the Laurentian tradition (Ritchie 1965:79). Among the recorded Laurentian traits are a few Vosburg points, a single example of the Otter Creek type and a chipped semilunar knife of rhyolite in the collection of the Vineland Historical Society, Vineland, N.J.

Of particular interest is the discovery of a number of projectile points that imply affinities to Middle and Early Archaic cultural sequences established from stratified sites in North Carolina (Coe 1964), West Virginia (Broyles 1966; 1971)

and southern New England (Dincauze 1971) and spanning a period of approximately 2500 years as determined by C-14 dating. Early point forms relating to the Atlantic Slope sequences of Coe and Dincauze represent regional variations of the following established types: Morrow Mountain II (Stark), Stanly Stemmed (Neville), and Kirk Corner-Notched points. Representatives of the West Virginia series comprise the bifurcate-base LeCroy points, along with some vaguely bifurcated forms in local collections from this site. Two Eva-like points of probable early, but uncertain, age were also found.

The situation is not entirely clear of confusion since some typological overlapping occurs, particularly in the case of the Morrow Mountain II-like points which also resemble in some respects the Late Archaic Poplar Island points or even Rossville points. The presence of distinctive forms, however, justifies the cautious acceptance of their validity as markers of quite early occupations. The cultural and chronological implications of these early points styles will be discussed in greater detail anon.

THE UNION LAKE SITES

(Cf. Mounier 1972)

Introduction

The sites described below lie along the shore of Union Lake (Map 1) which was created by the damming of the Maurice River a short distance below the head of tide-water about 1860. Originally the river must have run along what is now the western shore of the lake, judging from the present configuration of the lake and the situation of the primary feeder streams. Along the western shore of the river were bluffs of varying heights rising from the water's edge. Smaller cliffs and terraces to the east were probably separated from the river by a fairly extensive marsh. Presumably any high point along the river could have been reached with facility by boat or canoe.

The writer's attention was first called to the Union Lake sites in December of 1970 when he was notified by Mrs. Richard Wood of the discovery of many Indian relics from a site on the northeast shore of the lake. This site, subsequently termed Locus I, had been exposed by the lowering of the water level in Union Lake due to vandalism to the dam. The maximum recession of the water apparently measured some three and a half feet. This incident marked the first time in living memory that the water level in the lake had been significantly lowered since the dam was constructed more than a century before.

The artifacts from this site collected by Mr. and Mrs. Harry Francois and by Mrs. Gloria McLaughlin and sons were

examined by the writer and seemed to include items relating to Archaic through Late Woodland occupations as will be described anon.

Initial testing at Locus I was begun on December 12, 1970 by the writer with the able assistance of Mr. Donald C. Pettifer. At that time limited excavation was undertaken but failed to produce any evidence of prior occupation. Testing at the site revealed a soil profile which later proved to be more or less typical of the entire lake shore:

- 0"-6": Matted roots of briar and huckleberry in a loose white sand and humus mixture. In more low-lying areas this portion of the profile is laced with roots of water lilly and other aquatic plants.
- 6"-12": Fine white sand.
- 12"-16": A dark, somewhat undulating layer, apparently representing an old humus (not present at all loci).
- 16"-on: Fine white or yellowish sand.

The upper foot or so, composed of finely water-sorted material, was sterile. The humus layer encountered at 12"-16" may have represented an old topsoil or duff band, but it too was sterile where tested. Despite the lowered water level in the lake, the permeable sand deeper than 16" was saturated, and attempts at excavation were stymied by filling and by collapsing profiles. The very few artifacts recovered occurred for the most part beneath water level, and the inability to maintain stratigraphic control led to the suspension of operations until the following spring.

Investigations were renewed during the following May. As was anticipated, excavation at this and other locations along the lake shore was fraught with the same difficulties as before and proved essentially fruitless. By this time repairs to the dam were nearly completed and it was decided to terminate intensive excavation in favor of a surface survey of the lake shore aimed at locating areas of aboriginal occupation, before the rising lake water precluded any further discovery. Virtually every passable foot of shoreline was searched for signs of prior habitation. Three major areas of artifact concentration were discovered in addition to the initial finds reported by Mrs. Wood. The lake shore was divided into four loci which represent broadly the areas of concentration of the finds. These loci and the artifacts from them are briefly described below.

#### The Sites

Locus I: The northeastern shore of Union Lake in the vicinity of the Union House. Discoveries include many stemmed, notched, and triangular projectile points, a pick-shaped bannerstone or atlatl weight, a small whetstone, several hundred cord-marked and fabric-impressed sherds, various rough stone objects (no recognizable tools), a slate pendant, and various utilized flakes and scrapers. A small prehistoric hearth containing stone chips and potsherds was also found.

Locus II: The western shore and two small islands at the head of the lake, north of the nameless stream. Cultural remains include stemmed, notched and triangular points, a

few potsherds of cord-marked and fabric-impressed varieties, a fragmentary sandstone slab whetstone, and various chipping debris as well as utilized flakes and a cylindrical pestle.

Locus III: The western shore of Union Lake and the point of land between the Lebanon Branch on the south and the unnamed stream on the north. Finds include stemmed, notched, convex-base, and triangular points, a few cord-marked sherds, thumbnail scrapers, and various artifacts of European manufacture, including a kaolin pipe bowl and plain metal buttons.

Locus IV: The two large and two small islands lying off the western shore of Union Lake just south of Lebanon Branch. The artifact inventory comprises various stemmed and notched points, sherds of cord-marked vessels, and a few rough stone objects and chips. Twenty-three sherds of a single cord-marked vessel were found, apparently in situ, on the northern end of the largest island. Most of these sherds match to form the base of a large conoidal vessel. The absence of triangular points is noteworthy as these are commonly associated with ceramic artifacts.

### Features

Only one feature, a prehistoric hearth, was discovered during the survey off shore under five inches of water at Locus I. The hearth was roughly triangular in plan and measured about sixteen by eighteen inches. This feature, which was partially filled with fine sand and silt, was composed of a single course of rocks, primarily of quartz and sandstone, varying in size from one to six inches in

diameter. Most of the rocks were fire-cracked or chipped by percussion. Five small cord-marked sherds and many small jasper, quartz and quartzite chips were distributed throughout the hearth, but no charcoal remained. Absolutely no modern material was found in or near the feature, which seemed to be partly scattered by wave action. Subsequent to lifting the constituent rocks, the underlying sand was searched for artifacts, but nothing was recovered.

### Artifacts

The complete composite assemblage from the Union Lake sites is summarized below in tabular form.

<u>Projectile Points</u>	<u>f</u>
Triangular	
Levanna <sup>1</sup>	22
Squibnocket (?) <sup>1</sup>	6
Broad Square-Stemmed	
Koens-Crispin/Lehigh <sup>2</sup>	14
Perkiomen <sup>1</sup>	1
Fox Creek <sup>1</sup>	2
Stanly Stemmed <sup>3</sup>	2
Contracting-Stemmed	
Morrow Mountain I-like <sup>3</sup>	12
Poplar Island <sup>1</sup>	6
Rossville <sup>1</sup>	1
Fishtail <sup>1</sup>	5
Side-Notched	
Susquehanna Broad <sup>1</sup>	4
Cadwalader Side-Notched	7
Otter Creek <sup>1</sup>	2
Untyped	3
Corner-Notched	
Vosburg <sup>1</sup>	2
Untyped	2

<sup>1</sup>Ritchie 1971

<sup>2</sup>Kinsey 1972

<sup>3</sup>Goe 1964



- PLATE 35 -

CHIPPED STONE ARTIFACTS FROM UNION LAKE.

(Locus IV)

- 1, 4. Lagoon-, Poplar Island- or Morrow  
Mountain II- like points.
2. Stanly Stemmed point.
3. Cadwalader Side-Notched point.
5. Ovoid knife or scraper.
6. Fragmentary stemmed or notched point.

Material:

- 1, 3 - 6. Jasper.
2. Cohansey quartzite.



1



4



2



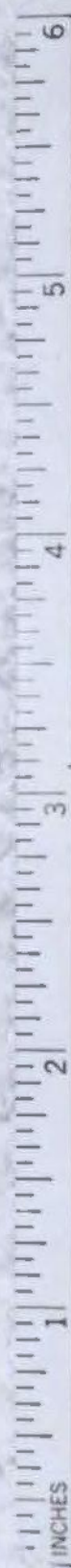
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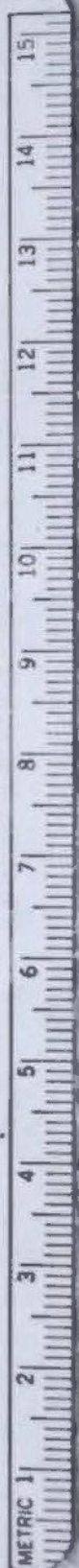


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- PLATE 36 -

STEMMED PROJECTILE POINTS FROM UNION LAKE.

(Locus I)

1 - 4. Contracting-stemmed points.

Numbers 1 and 4: Lagoon-like.

Number 3: Morrow Mountain I-like.

5 - 6. Koens-Crispin/Lehigh points.

7. Stanly Stemmed point.

Material:

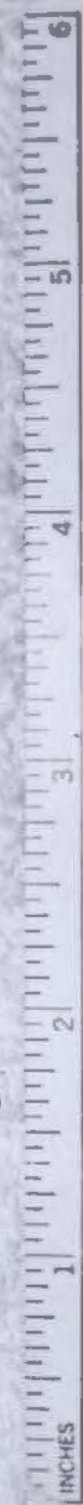
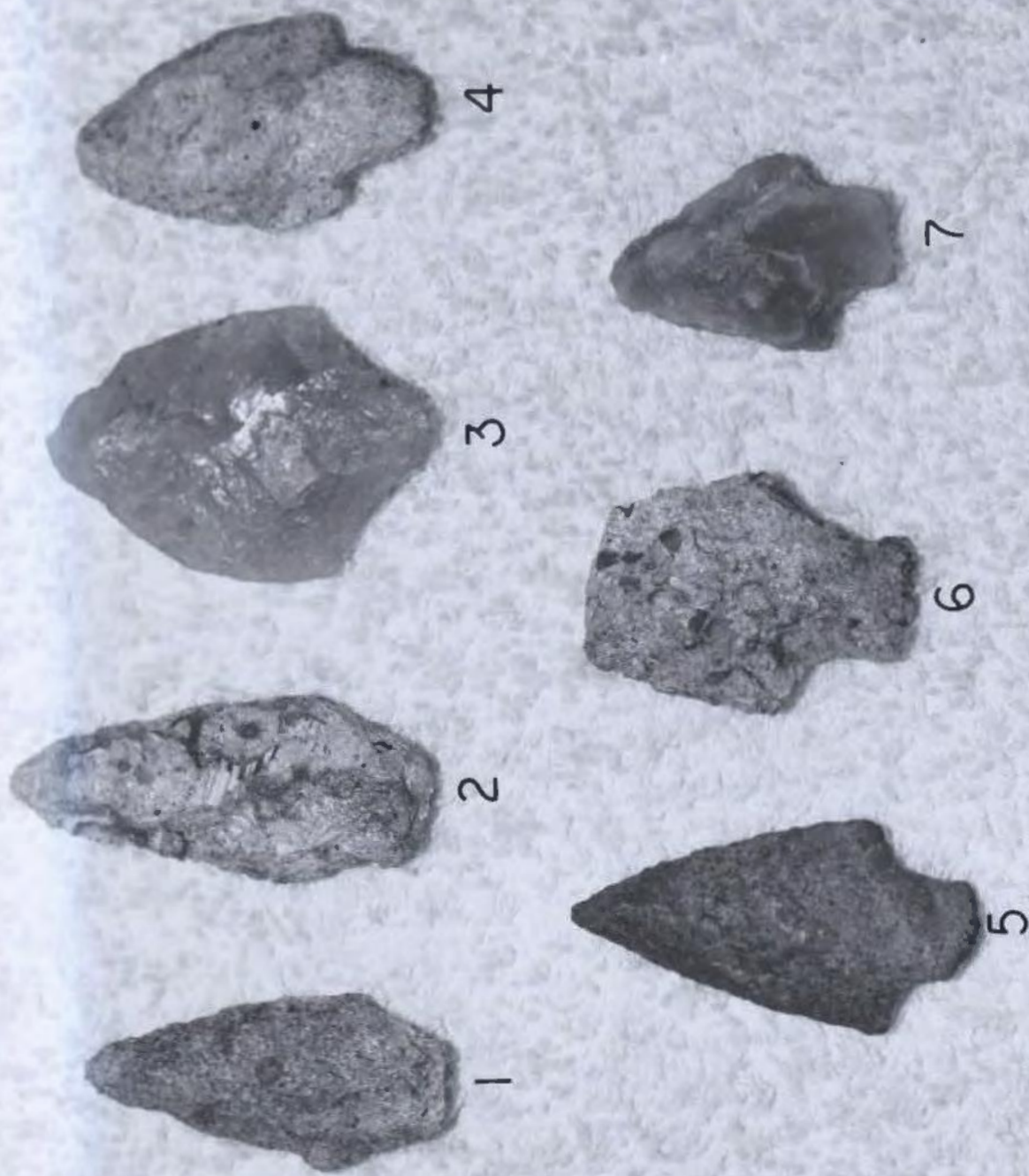
1, 2, 4, 6. Cohansey quartzite.

3. Quartz.

5. Quartzite.

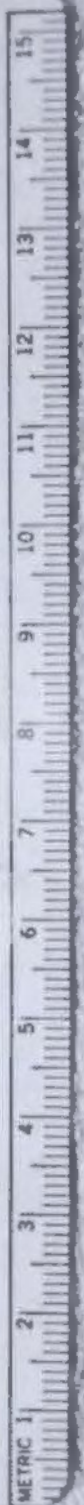
7. Chalcedony.





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- PLATE 37 -

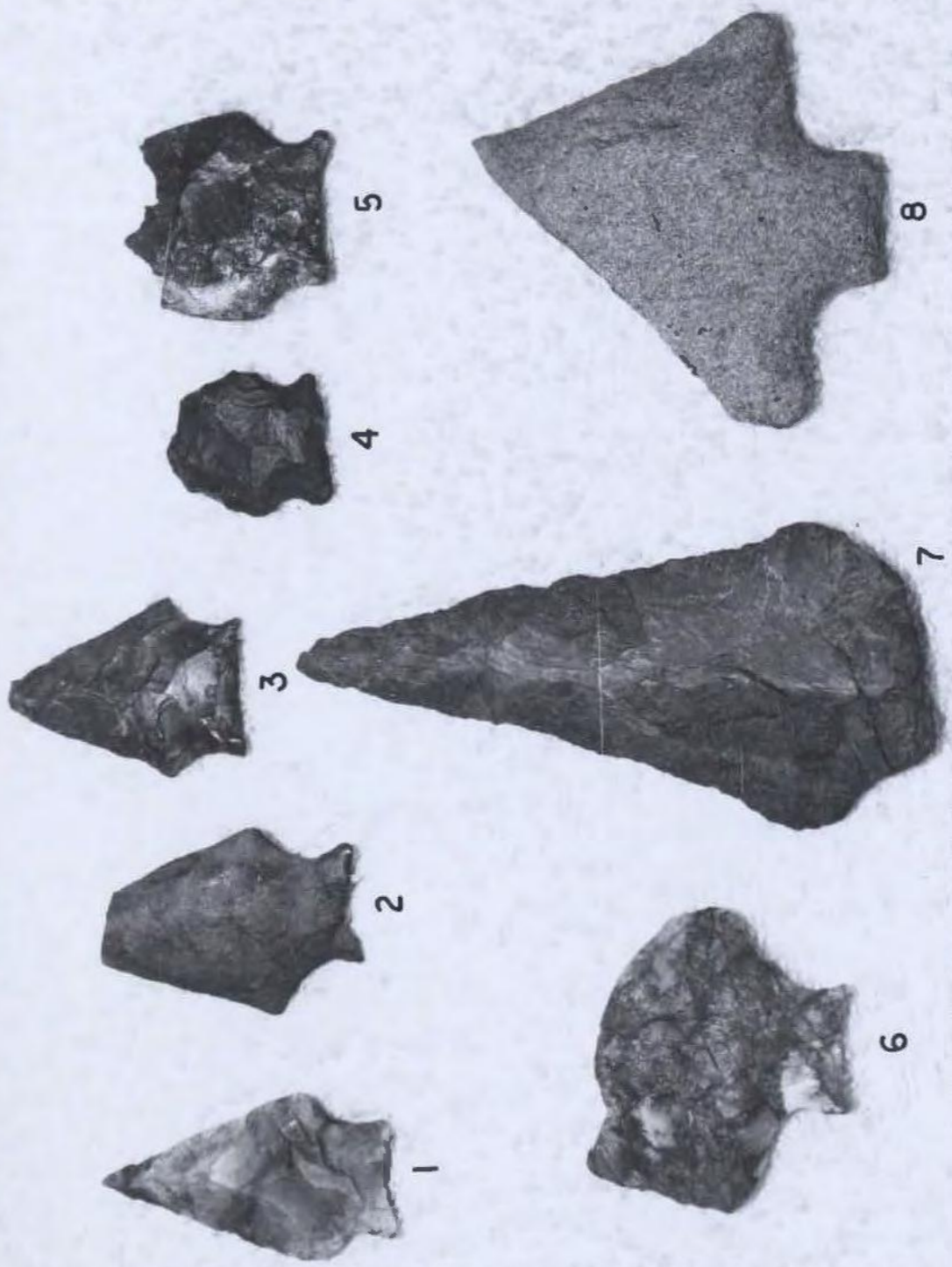
SUSQUEHANNA TRADITION ARTIFACTS  
FROM UNION LAKE (LOCUS I).

- 1 - 5. Susquehanna Broad points.  
Number 4 modified for scraping.
6. Perkiomen Broad point.
7. Knife (Perkiomen ?).
8. Lehigh point.

Material:

- 1 - 2. Chert.
- 3 - 7. Pennsylvania jasper.
8. Quartzite.





INCHES 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

METRIC 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

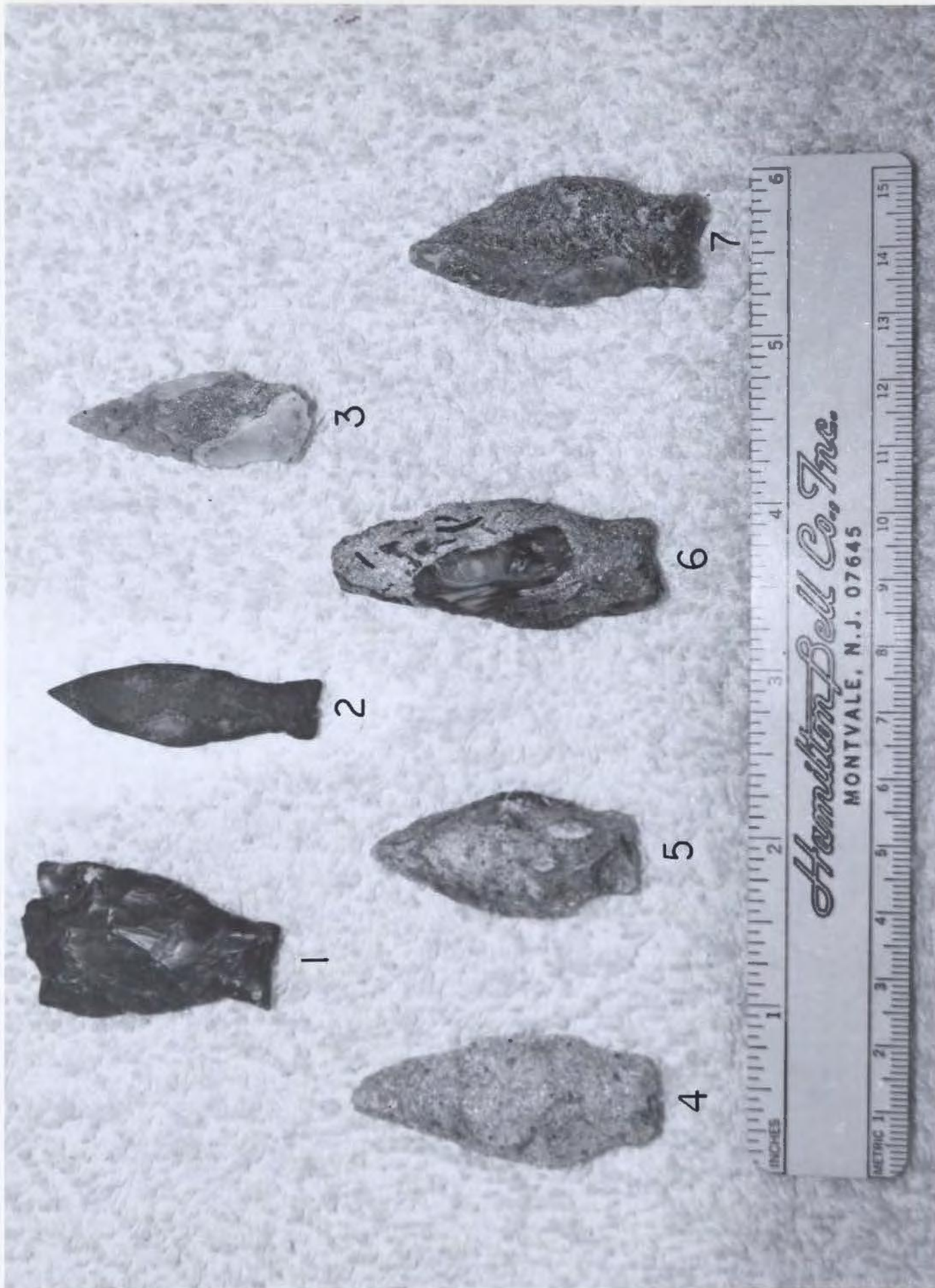
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- PLATE 38 -

FISHTAIL POINTS FROM UNION LAKE (LOCUS I).

Material:

1. Pennsylvania jasper.
2. Slate.
- 3 - 7. Cohansey quartzite.





- PLATE 39 -

PROJECTILE POINTS FROM UNION LAKE (LOCUS I).

- 1. Deep side-notched point.
- 2 - 4. Cadwalader Side-Notched points.
- 5 - 6. Untyped corner-notched points.
- 7 - 8. Otter Creek points.

Material:

- 1, 2, 4 - 6. Jasper.
- 3. Chalcedony.
- 7. Quartzite.
- 8. Hematite cemented  
siltstone.



1



2



3



4



5



6



7



8



INCHES

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METRIC

- PLATE 40 -

PROJECTILE POINTS FROM UNION LAKE (LOCUS III).

1. Vosburg point.
2. Triangular point.
3. Contracting stemmed point.
- 4 - 6. Convex base points.

Material:

- 1 - 2. Jasper.
- 3 - 6. Argillite.



1



2



3



4



5



6



- PLATE 41 -

TRIANGULAR POINTS AND DRILL FROM  
UNION LAKE (LOCUS I)

Material: Jasper.





1



2



3



4



5



6



7

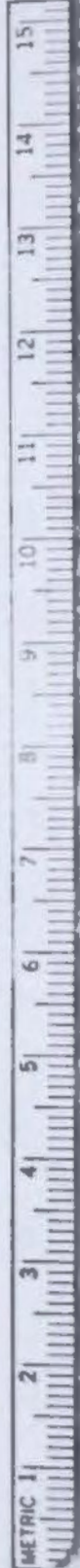


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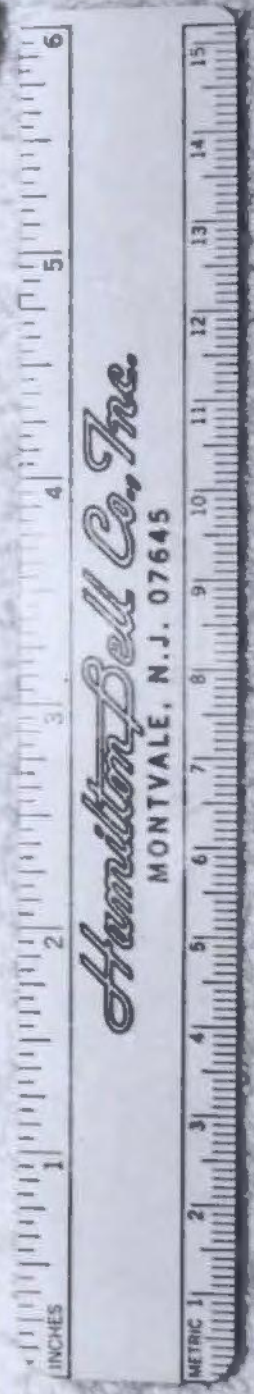
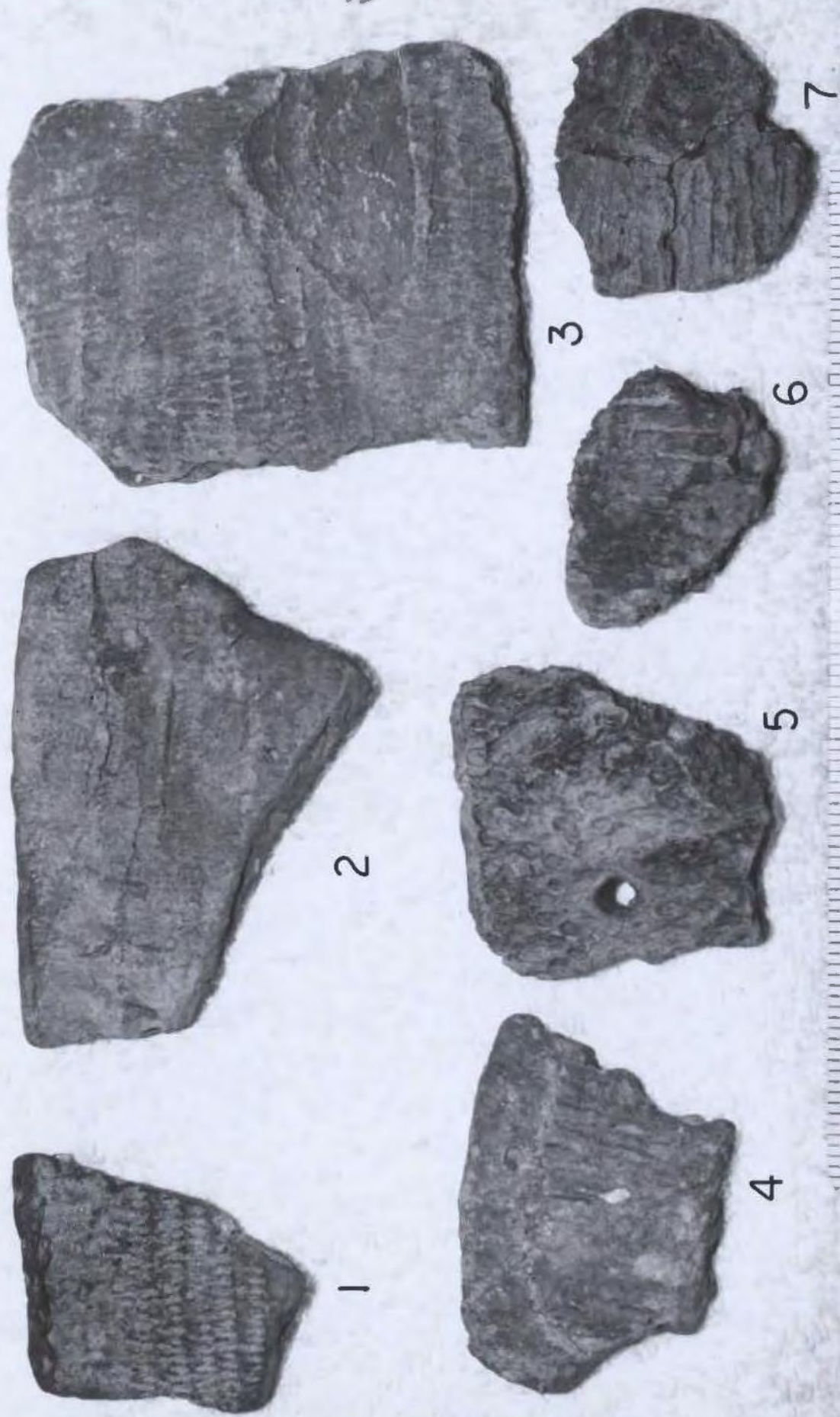


- PLATE 42 -

POTTERY FROM UNION LAKE (LOCUS I).

1 - 5. Riggins Fabric-Imprinted.

6 - 7. Union Lake Corded.





- PLATE 43 -

POTTERY FROM UNION LAKE (LOCUS II).

1 - 3, 5. Union Lake Corded .

4. Riggins Fabric-Imprinted.



1



2



3



4



5



Convex-base	8
Miscellaneous	3
<u>Blanks</u>	
Susquehanna Broad	1
<u>Modified Point Tools</u>	
Susquehanna Broad Scraper	1
Triangular-base drills	3
Contracting-stemmed knife	1
<u>Knives</u>	
Triangular	1
Asymmetrical Single-shouldered	1
Perkiomen Broad (?)	1
<u>Scrapers</u>	
Ovoid bifaces	1
End scrapers	2
Side scrapers	3
Crescentic ("spokeshave")	1
Utilized flakes	37
<u>Rough Stone</u>	
Whetstones	3
Cobble hammerstones	2
Bipolar hammerstone	1
Cylindrical pestle	1
<u>Ground Stone</u>	
Pick-shaped bannerstone	1
Slate effigy/pendant	1
Fishtail point (?)	1
<u>Pottery</u>	
Union Lake Corded	326
Riggins Fabric-Imprinted	90

### Interpretations

The surface survey of the Union Lake area was useful in locating a few heretofore unrecognized sites but tells us little of the cultural and chronological affinities of the artifacts thus discovered or the elements of culturally significant assemblages. Limited intensive excavations at Loci I, II, and IV were also uninformative in this regard.

In the absence of firm stratigraphic control it is difficult to assess the significance of the finds and to fit them within the all-too-poorly defined framework of prehistoric cultural development in this area.

Strictly on the tenuous basis of typological similarity it would seem that the material noted above is representative of a long span of prehistory in the southern New Jersey area beginning no later than the Late Archaic, but possibly considerably earlier.

There is some indication of very early occupations in the Union Lake area. Some of the projectile points in particular are strongly reminiscent of Early and Middle Archaic forms found in the Southeast and in New England. Early types which seem to be present include Morrow Mountain I and II points (Coe 1964:37-43) or their local variant forms, which resemble the Poplar Island type (Cf. Mitchie 1961:44-45; Dincauze, personal communication) although it is unclear at this time whether these types represent closely related phases of the same continuum or simply reflect a case of morphological convergence. Also recovered were Stanly Stemmed (Coe 1964:35) or Neville points (Dincauze 1971:195) which were authenticated on formal grounds by Dincauze in personal communication. Their presence here would seem to signify an antiquity of 7000 - 8000 years, according to current thinking (Coe 1964:122-23; Dincauze 1971:195).

A series of Late Archaic occupations growing out of

the Savannah River broad stemmed point tradition and terminating in the use of fishtail points can be reasonably adduced from the data at hand. The greatest chronological period represented by the various square-stemmed, broad- and fishtail points probably amounts to something greater than a millenium, beginning in this area about 1900 B.C.

A number of the Susquehanna Broad and fishtail points, the end products of this projectile point tradition, form a stylistic continuum grading from holotypic Susquehanna Broad points on the one end to true Orient fishtail points on the other, and as such this series corresponds to Werner's (1972: 117-22) Upper Delaware Valley Dry Brook phase or its equivalent, more easterly, expressions in New York (Ritchie 1959: 90-91) and Massachusetts (Dincauze 1963: 26).

A scattering of Laurentian tradition traits, including Vosburg and Otter Creek points have been identified from photographs by Ritchie (personal communication). These relics seem to point to a diffuse boreal influence, also perceivable at the Indian Head site (p. 129). and in various local collections.

Early and Middle Woodland cultures are not in evidence, or at least have not been recognized in the surface finds at Union Lake, and at present, evidence attributable to Late Woodland occupations is restricted to the use of equilateral triangular points, Union Lake Corded and Riggins Fabric-Imprinted pottery. It is possible that the less durable earlier fictile materials have not survived the inundation

of the valley.

Artifacts of the historic era have been found in profusion in the vicinity of the Union House. Locus III was the only other area tested in this survey to produce historic artifacts in any number. It is suspected that these relics relate to an industrial station of the late 18th or early 19th centuries.

## DISCUSSION

The cultural sequence and chronology which follows has been developed from several lines of archaeological evidence, incorporating data from our excavated sites, prior archaeological investigations in the area, a survey of the local private and institutional collections, and comparisons with existing regional archaeological records. The culture sequence, then, represents a composite established by means of interdigitation of relevant data from various sources. Likewise the chronology has been created largely through interpolation from previously recorded regional sequences and internally by superposition and stratification. Two C-14 age determinations provide presumably culture-free or independent support for the major body of the chronological framework.

The sequence- written as a brief regional synthesis- has been structured so as to provide both horizontal scope and historical depth, that is, through the use of culture types or periods on the one hand and traditions on the other. A synchronic view or "slice of time" is achieved by the use of culture types or periods which have the advantage of possessing familiar labels with well recognized constellations of traits and with presupposed concomitant social activities (Cf. Griffin 1952). The failing of this system is, of course, that it embodies the static and artificial lumping of coeval but often disparate traits as though such derived groupings had substance in and of themselves, and in the process, histor-

ical developments become obscured.

The analysis of traditions within and sometimes transecting these broad cultural types circumvents the major problems presented by the study of culture periods alone. The study of traditions emphasizes the historical perspective and permits the explication of developing technologies and patterned behavior. Within traditions can be recognized phases, archaeologically expressed as components, which represent distinct historically and culturally related manifestations at a particular point in time.

Thus, the attempt has been made to combine in this discussion the best of both classificatory systems; hence, the postulated culture sequence that follows is divided into culture types or periods - Paleo-Indian, Archaic, and Woodland - and their included traditions to the extent that these can be determined.

Paleo-Indian: The Paleo-Indian culture type is characterized by a simple economy based upon the hunting of late Pleistocene big game and possibly other animals. The basic social unit is most often conceived of as a small, highly mobile band. The typical Paleo-Indian tool kit comprises lanceolate fluted points of relatively consistent form, free flakes with single or multiple graving spurs, unifacial scrapers, and knives. Conservative age estimates place the Paleo-Indian period at 9,000 - 13,000 years ago (Ritchie 1965:9). In the Delaware Valley the major concentrations of related finds cluster around Trenton, New Jersey and in the



environs of New Castle County, Delaware; Chester and Delaware Counties, Pennsylvania; and, Gloucester and Salem Counties, New Jersey (Mason 1959:8). The coastal plain in New Jersey bears little evidence of Paleo-Indian occupation, and this province, it would seem, held small attraction for these early hunters.

Only two fluted points, both in the George Woodruff collection, are on record for the Maurice River drainage. Both were collected along the Muddy Run in the headwaters of the Maurice River near Parvins State Park. No other specimens from this watershed have ever come to light nor were any seen in the study of local private collections. This negative evidence supports the conclusion that, for one reason or another, the Maurice River valley was not conducive to Paleo-Indian habitation, or at least, indications to the contrary await discovery.

Archaic: The Archaic is generally regarded as signifying the exploitation of an unmodified natural environment with an emphasis on increasingly effective and economical patterns of hunting and gathering, leading to what Caldwell (1958:6-18) has called "primary forest efficiency," which rendered agriculture unnecessary or superfluous. Curiously the advent of primary forest efficiency, followed pari passu by semi-sedentary life, may have actually increased the potential for the development of agriculture by providing both time and propitious opportunity for the

unwitting discovery of domesticable plants.

The typical Archaic congeries include some or all of the following elements: an abundance of chipped stone points, knives and scrapers; ground stone woodworking tools such as axes, celts, and gouges; the bannerstone in several simple forms; a well developed bone and antler industry; the lack of pottery, but the use of stone bowls or vessels of perishable materials (Cf. Ritchie 1965:31). The social organization is supposed to have been dominated by the interaction and cooperation of small mobile families living in more or less temporary shelters and following a seasonal exploitative round.

Recognizable within this generally uniform paradigm, between 7000 B.C. and 1000 B.C., are numerous local or regional variations reflecting ecological adaptation, the interaction of groups and the rise of regional traditions, the earliest of which, apparently arising in the Southeast, manifests the evolution of large stemmed projectile points between 7000 B.C. and 4500 B.C. This tradition- typified by the transition from Kirk through Stanly to Morrow Mountain I and II points- was first recognized by Coe (1964) in the North Carolina piedmont in a series of stratified components, each embracing the use of a single distinctive point style.

Somewhat later Broyles (1966; 1971) was able to fill the hiatus between the Kirk and Stanly horizons with a series of bifurcate base points- St. Albans, Le Croy, and Kanawha - respectively dated at 6900 B.C., 6300 B.C., and 6200 B.C.

(Broyles 1971:30-31); and, in New England Dincauze's (1971) Neville site sequence begins with Stanly-like Neville points sometime after 6000 B.C. The Neville points then seem to evolve about 5800 B.C. into the Morrow Mountain II-like Stark points which in turn apparently develop into Merrimac points. These last, which resemble the Bare Island type, appear to initiate the so-called narrow point tradition in southern New England.

This compound sequence as interpolated from the work of Coe, Broyles and Dincauze seems to express the general evolution of the southeastern derived projectile point styles through Early and Middle Archaic times on the eastern seaboard. Similar point styles with generally consonant dating, where available, are well known along the Atlantic coast from Staten Island (Ritchie and Funk 1971) to the Chesapeake Bay region (Holmes 1897: 30-97; Holland 1955:168; Stephenson and Ferguson 1963:150). Points of like typology are not uncommon in New Jersey, and Cross (1941) illustrates several examples of Early and Middle Archaic points from the following sites: Riggins, Young's Nursery, Salisbury, Hurff, Worrell, Stobbe, New Sharon, Red Valley, and the Abbott Farm (Cross 1956).

Archaic projectile point types apparently relating to the innominate Kirk-Stanly- Morrow Mountain tradition have a sporadic distribution in the lower Maurice River watershed. Two local variants of the Stanly point type were recovered at the Indian Head site along with a like number of LeCroy points as well as several related bifurcate-base specimens.

Loci I and IV at Union Lake each produced one Stanly point. Kirk, LeCroy, Kanawha, and Stanly points have all been seen in private, locally amassed collections. Morrow Mountain-like points abound, but because of their strong resemblance to late Archaic point types, such as Poplar Island points, their identity cannot be verified in surface collections.

The scant evidence derived from surface finds seems to indicate that the Early and Middle Archaic cultural progression here conforms to the composite sequence abstracted from the earlier reports just cited. The sequence is characterized by the following point types, listed in order of appearance, viz., Kirk, Le Croy, Kanawha, Stanly, and Morrow Mountain I and II. The dating is as yet insecure but probably spans two and a half millennia beginning about 7000 B.C. The elements complementing the respective components are unrecognized in this area and must remain so until carefully controlled excavation of closed or stratified deposits can be effected.

To judge from the Neville sequence, the foregoing tradition gradually gave rise to the so-called narrow point tradition (Bincauze 1971:198) which embraces the following recognized point types: Bare Island, Poplar Island, Lackawaxen Stemmed, Wading River, Squibnocket Stemmed, Sylvan Sida-Notched, Macpherson, Normanskill, Lamoka and Lamoka-like points, among others (Kinsey 1972:337).

This oft- and poorly named grouping has endured a long

list of inadequate and undesirable titles, including, "Coastal Archaic" (Byers 1959:236-43), "Appalachian" (Ritchie 1969a:144), "Taconic" (Brennan 1967:5), "Piedmont" (Kinsey 1972:337), and "Small Stemmed Point" tradition (Ritchie 1965a). None of these names is entirely satisfactory for the reasons expressed by Ritchie (1969a:144), specifically, because of the implied geographic and morphological restrictions. Failing an acceptable nomenclature it is perhaps best to hobble along without further additions in the knowledge of what is generally meant by these terms.

The regionalized names applied to this tradition provide a clue to its widespread distribution. It is represented as discrete elements or in complexes along the East Coast from Virginia to southern New England, with considerable penetration into the upland regions of Pennsylvania and New York State, especially along the Delaware, Hudson, and Susquehanna Rivers and their major tributaries (Kinsey 1972:337; Funk 1965:152; Brennan 1967; Ritchie 1971a:5). In Pennsylvania the narrow point tradition is expressed in Kinsey's (1972:336-39) Delaware Valley Archaic complex which he dates between 3200 B.C. and 1700 B.C. In New York State and Massachusetts the related and nearly contemporaneous Sylvan Lake (Funk 1965:146) and Squibnocket complexes (Ritchie 1969: 218) share a date of c. 2200 B.C. while the Lamoka phase is securely dated to c. 2500 B.C. at the type site (Ritchie 1965:44-45). To the south in New Jersey

(Cross 1941) and the Chesapeake Bay region (Stephenson and Ferguson 1963:140-52) similar manifestations occur in undated contexts and, with the exception of Kinsey's (1959) Bare Island complex, have not been grouped into larger cultural units. The coastal areas in general seem to have witnessed the evolution of the narrow point tradition and its rather conservative persistence to relatively late Archaic times. The typical lithic traits rounding out the narrow point-sharing complexes comprise bannerstones of notched and bipennate forms, plummetts, choppers, chipped stone knives of different shapes, hematite and graphite paintstones, and a variety of rough stone objects such as mullers, pestles, hammer- and whetstones. In addition, the Lamoka phase has a rich bone inventory (Ritchie 1965).

Characteristic narrow-bladed projectile points attributable to the Bare Island, Poplar Island, Wading River, and Squibnocket Stemmed types occur with some frequency at the Indian Head, Union Lake (all loci), and the Cadwalader Annex sites, usually in mixed assemblages. Other objects such as pestles, knives, and spearthrower weights may well belong in an as yet undefined complex, but confirmatory testimony is lacking.

One distinctive point style that seems to spring forth from the narrow point tradition, at least in southern New Jersey, is the Rossville type which was found in a firm late Archaic context at the Cadwalader Annex site well below the Early Woodland pottery-bearing level. There was no hint

of Rossville participation in a Woodland complex at this site, and the Archaic provenience for the Rossville type, both here in southern New Jersey and on western Long Island (Skinner 1919:54, 72), is interesting in light of its apparent affiliation with Early and Middle Woodland complexes in Massachusetts (Ritchie 1969:224) and in northeastern Pennsylvania (Kinsey 1972:364-69). Unhappily, the data necessary to reconcile this apparent incongruity are not at hand, unless one postulates a conservative adherence to the use of the Rossville style throughout the Northeast. It is possible that our seemingly disparate chronologies actually represent the poles of a lengthy continuum, spanning Late Archaic to Middle Woodland times, but this situation has yet to be demonstrated. If, in fact, Rossville points originated in the Chesapeake Bay region as Ritchie (1961:46) suspects, then their earlier occurrence near their heartland should not come as much of a surprise.

The ancestry of the Rossville point type remains somewhat nebulous. The Poplar Island point seems a likely prototype on morphological grounds as Ritchie (1961:46) adumbrates. Kinsey's (1972:366) seriation of Ritchie's Lagoon complex materials from Martha's Vineyard shows a progressive increase in the popularity of the Rossville type through time with a concomitant decline in the frequency of the Lagoon points. This trend suggests that Rossville points may have developed indirectly from a narrow point prototype through an intermediate stage represented by Lagoon points, and

such a sequential development may have, in fact, transpired during Late Archaic times. This interpretation is presently clouded by the relatively late appearance of Lagoon points about 500 B.C. (Ritchie 1969:224) and it is to be hoped that as studies proliferate, the confusion surrounding the evolution of Rossville points will be resolved.

Likewise, the descendent forms that emerge from the Rossville type have gone unrecognized to date in excavated sites. Strictly on formal grounds and with due reservation, the nameless convex-base point style, which occurs commonly from central New Jersey (Cross 1941:24) to tidewater Virginia (Holland 1955:69-70) is tendered here as the possible lithic progeny of the Rossville type. These points form a continuous series ranging from a convex-base or "teardrop" variety on the one extreme to an angular- or pointed-base configuration on the other, wherein they merge with points of the Rossville type (Mounier n.d.; Cross 1956: Pl.20a). Straightening the base on the teardrop-shaped specimens would result in small triangular points, thus completing the transition from Early Woodland to Late Woodland types. This proposed scheme presents a clear morphological transformation, but what objective reality it possesses is a matter for future critical examination.

Returning to the discussion of Archaic cultures and traditions, the student of Northeastern prehistory is impressed with the far-flung dispersal of the Laurentian



tradition, which is evidenced on numerous sites in southeastern Ontario, southern Quebec, northern New England, and New York State (Ritchie 1965:79), with scattered components appearing into the Middle Atlantic region. Of the recognized Laurentian phases, the Vosburg and Vergennes receive incomplete archaeological expression in this last named area. The Vosburg phase, represented by distinctive corner-notched points of the same name, occurs with some frequency in the Delaware Water Gap area and with diminishing regularity southward, probably within the C-14 dated span of c. 3500 B.C. - 2500 B.C. (Ritchie 1965:83-83; Kinsey 1972:398) while the presence of the Vergennes phase in this area is signaled by the appearance of Otter Creek points (Kinsey 1972:340-41). The chronology relating to Vergennes manifestations is in flux. It apparently embraces a period of about 1000 years as represented by the extreme age determinations of 3300 B.C. in the Ottawa Valley of southeastern Canada (Kennedy 1970:61-63) and 2270 B.C.  $\pm$  160 years (Y-1530) from the Hornblower II site on Martha's Vineyard (Ritchie 1969:38). A large refuse bone sample excavated by Ritchie and Richard Passino in 1971 from a typical Vergennes station on the Otter Creek in Addison County, Vermont yielded a date of 3120 B.C.  $\pm$  210 (I-6349) (Ritchie correspondence, December 22, 1972). According to Ritchie, the Vergennes phase was not represented at the Sylvan Lake site as others have claimed (Funk 1965; Kinsey 1972:331), and the early assays of 4030 B.C.  $\pm$  120 (I-2599) and 4610 B.C.  $\pm$  100 (Y-1655) (Funk 1965) from the

basal layer of that rockshelter are considered by Ritchie to antedate the appearance of the Vergennes phase.

In the Maurice River drainage the Laurentian tradition is faintly and no doubt only briefly expressed at Union Lake (Locs I, II, III) by two specimens each of the Vosburg and Otter Creek point types which were identified from photographs and descriptions by Ritchie (correspondence, August 17, 1972) and at the Indian Head site where Vosburg points were recovered with a chipped semilunar knife. Such finds attest to the much attenuated, though still palpable, influence of the Laurentian continuum some time between 3500 B.C. and 2500 B.C. It is possible, though not presently demonstrable, that this expansion of Laurentian into southern New Jersey was contemporaneous with a similar Laurentian intrusion into southern New England about 2500 B.C. (Dincauze 1971). The mode of transmission of Laurentian elements into this area and the general lack of Laurentian diagnostics, with the exception of projectile points, are in need of explanation.

One of the most pervasive Late Archaic manifestations in the Northeast is the Susquehanna tradition which is represented by several phases or complexes within this area, viz., the Snook Kill and closely related and probably ancestral Koens-Crispin/Lehigh phases; the Perkiomen phase; the Frost Island or Susquehanna phase; the Dry Brook phase; and the Orient phase. The material culture of the Susquehanna tradition as a whole is characterized by a genetically related

series of broad stemmed and semi-lozenge-shaped points and narrow fishtail points, the major types of which are considered diagnostic for the various phases. The series exhibits considerable internal consistency with respect to form and clearly demonstrates the lineal development of the included point types.

The Susquehanna tradition apparently diffused northward along the Atlantic coast through a stemmed-point prototype as an outgrowth of the Savannah River Stemmed point tradition, bringing with it as an endogenous trait the use of carved soapstone vessels (Witthoft 1953; Ritchie 1965: 149-77). This trait has led to the widespread use of the term "Transitional," first applied by Witthoft (1953) in naming these related manifestations, since the production of stone containers substitutes for the lack of non-perishable vessels in Archaic times, thereby bridging the technological gap between the aceramic Archaic cultures and their pottery-bearing Woodland successors. In this sense, these earlier expressions are truly transitional, but since cultural developments through time generally have shown comparable technological transitions, and since the innovation of soapstone pots seems not to have greatly modified the general life patterns of the related peoples (Ritchie 1965:151), I would abandon this nomenclature and simply consider these manifestations as the late to terminal Archaic cultural expressions in this area.

Present evidence suggests the Savannah River tradition of the Southeast (Clafin 1931; Coe 1964) as the clearest

antecedent to the Susquehanna tradition cultures. Large broad-bladed, square-stemmed points of quartzite, rhyolite, or andesite, grooved axes, and steatite vessels typify the Savannah River tradition which has been radiocarbon dated to 1944 B.C.  $\pm$  250 years (M-524) at the Gaston site in North Carolina (Coe 1964:97).

Local variations of the Savannah River Stemmed point in the Northeast include the Snook Kill (Ritchie 1961:47-48) and Koens-Crispin/Lehigh points (Witthoft 1953:21-22; Kinsey 1972:349-52) and probably Witthoft's (1959:82) lithic assemblage from the Long site in Lebanon County, Pennsylvania. The large corner-removed points excavated from Stratum 2 of the Fralinger site also fall within the early period of Susquehanna tradition development in this area as indicated by the radiocarbon age determination of 1880 B.C.  $\pm$  100 years (I-6730) on a related feature.

This date is the earliest yet reported for this tradition in the Northeast. Two C-14 dates are on record for the Koens-Crispin/Lehigh phase in the upper Delaware Valley: 1720 B.C.  $\pm$  100 years (Y-1826) (Kinsey 1968:246) and 1720 B.C.  $\pm$  120 years (Y-2587) (Kraft 1970:31). In New Hampshire an apparently related hearth produced a date of 1670 B.C.  $\pm$  110 years (Y-1373) (Finch 1965:15; Dincauze 1968:82) while Ritchie's (1965:135) single determination for the Snook Kill phase in New York State indicates a date of 1470 B.C.  $\pm$  100 years (Y-1170). Thus, if standard deviations are considered, the existing C-14 dates indicate the continuous evolution of

these diverse stemmed points styles over a period somewhat in excess of 800 years. It is suspected that as further research is completed - especially in the Middle Atlantic States where these points are abundant but poorly recorded - the reality of this cultural and temporal continuum will be verified, and presumably the entire sequence will be given an even greater time depth.

The basic elements of these closely allied early Susquehanna tradition complexes comprise broad stemmed points; thick stemmed scrapers, fashioned from projectile points; celts, adzes and stone potsherds; plus, the early emergence of an elaborate pattern of mortuary ceremonialism - emphasizing the practice of cremation, the ritual use of red ochre, and the inclusion of often lavish grave furniture - the basic idea for which probably originated in the earlier Archaic cultures of the North (Tuck, n.d.).

Perhaps the most famous example of mortuary ceremonialism on the East Coast at this time level is the spectacular Koens-Crispin cemetery near Medford, New Jersey (Hawkes and Linton 1916; Cross 1941:81-90). More recently, excavations on the nearby Savich Farm site have revealed a remarkable congeries of richly accoutered cremated burials associated with the Koens-Crispin point type (Regensburg 1971). Ritchie (1965: 138) records two cremations, probably referable to the Snook Kill phase on eastern Long Island. Dincauze's (1968:18-20) Mansion Inn blades seem to be allied to the Snook Kill or Koens-Crispin/Lehigh Broad types, and their inclusion in a mortuary complex in eastern Massachusetts is of considerable signifi-

cance. In addition, all of the later Susquehanna tradition phases - Perkiomen, Frost Island, and Orient - participated to varying degrees in burial ritualism. Werner's (1972:121) recently defined Dry Brook phase is the only such manifestation that has failed to produce evidence of this practice, but this lack is probably due to limited sampling. The clear relationship between the Dry Brook phase on the one hand and the "Coburn group" (Dincauze 1968:66-70) and the Orient phase (Ritchie 1965:163-77) on the other intimates that the discovery of a Dry Brook cremation cemetery is only a matter of time.

Of the remaining Susquehanna tradition phases the Perkiomen phase or complex is the least well known, possessing by far the most circumscribed distribution. The Perkiomen complex or its diagnostic markers - Perkiomen points, modified point scrapers and drills, chipped and polished adzes, and bipennate spearthrower weights - are mainly restricted to northeastern Pennsylvania and environs, where the major components of this complex have been discovered (Kraft 1972: 10-14; Kinsey and McNett 1972 :159-97). Beyond this area recorded sites are few. The Piffard site in the central Genessee Valley of New York has produced a related interment of cremated human remains accompanied by fifty to sixty intentionally broken or "killed" Perkiomen points intermixed with red ochre, this being the only burial attributable to the Perkiomen complex anywhere within its range (Ritchie

1965:152-53). Perkiomen points and derived artifacts occur sporadically in New Jersey (Cross 1941: Pl.2b; Pl.59a, Fig. 4), and in the Maurice River area, the complex is evidenced by a single example of the Perkiomen point type from Locus I at Union Lake.

The dating of the Perkiomen phases is unsure. All dates derive from the recent excavations in the Tocks Island Reservoir area of the upper Delaware Valley and have a spread of somewhat greater than two hundred years from 1720 B.C.  $\pm$  120 years (Y-2587) (Kraft 1970:31) to 1500 B.C.  $\pm$  120 years (Y-2478) (Kinsey 1972a:188). Intermediate dates of 1620 B.C.  $\pm$  100 years (Y-2340) (Kinsey and McNett 1972:222) and 1640 B.C.  $\pm$  100 years (Y-1588) (Kraft 1970:62) were also obtained in the same area.

Much better known and with a vastly greater distribution is the Frost Island or Susquehanna phase (Witthoft 1953:7-16; Ritchie 1965:155-63; Kinsey 1972:353-55), whose diagnostics include Susquehanna Broad points; drills, scrapers, and graters, all made from broken points; end- and side-notched netsinkers; oval to rectangular, flat-bottom soapstone pots with straight or sloping sides and lug handles, and usually with tooled exterior surfaces; infrequently, Marcey Creek pottery; doughnut-shaped beads, gorgets, and ladles, out from fractured steatite kettles; hammers, anvils and adzes. The practice of cremation burial with inclusions of "killed" funerary offerings has been recorded for this phase in New York State (Ritchie 1965:162) and for the Watertown phase,

its counterpart in Massachusetts (Dincauze 1968:43-66).

Ritchie's (1965:156) date of 1250 B.C.  $\pm$  100 years (Y-1274) for the Frost Island phase at the O'Neil site is the only such determination for New York State as well as the most recent of the series for this manifestation elsewhere. The Susquehanna component at the Zimmerman site near Dingman's Ferry, Pennsylvania yielded a date of 1650 B.C.  $\pm$  80 years (Y-2344) (Werner 1972:116) while the Watertown phase in eastern Massachusetts is placed at 1520 B.C.  $\pm$  120 years (GX-0568) (Dincauze 1968:76). These dates suggest that Ritchie's estimate may be too modest, but the dates are, in any event, too infrequent to be definitive.

As alluded to above the Susquehanna point type and related artifacts have a great geographic dispersal, primarily in the Appalachian piedmont, ranging from the upper Chesapeake Bay northward through much of eastern Pennsylvania (Witthoft 1953: 7-16; McCann 1962; Werner 1972: 116-17), southern New York State (Ritchie 1965:155-63) and into southern New England (Ritchie 1969:230; Dincauze 1968:76). Their distribution in New Jersey is not intense. Cross (1941) illustrates examples from the Stobbe, Salisbury and Red Valley sites. According to Charles F. Kier, Jr. (correspondence, February 7, 1971), "The distribution of Susquehanna and Orient material is very much scattered in southern New Jersey. There are a few areas where they occur more frequently, mostly on sites along the Delaware River and upper Delaware Bay, and very widely scattered on sites along the coast from Toms River to Cape May."



Four semi-lozenge-shaped points, tentatively identified as Susquehanna Broad points, were found at Union Lake (Locus I) as was a modified point scraper. Another such point was recovered in the Indian Site Survey excavations at the East Point site. These relics, along with a few points scattered in private collections are the only vestiges locally attributable to this phase in the lower Maurice River area.

Many of the projectile points relegated to the Susquehanna Broad category can be shown to intergrade with the temporally later Orient Fishtail style. This typological convergence, envisioned by Ritchie (1959:90) and Dincauze (1968:25-26) in their respective areas, explicates the genetic link between the two forms. In Pennsylvania Werner (1972:117-22) has recently defined the Dry Brook phase, based upon the occurrence of these intermediate point forms with the associated presence of fish-tail point-derived scrapers and drills, fire making sets (flint strikers and sulfide anvils), celts, the adze, chipped stone picks, soapstone bowls with both smooth and tooled exteriors, soapstone utensils and ornaments out from broken bowls, and notched pebble netsinkers. This phase, which has been radio-carbon dated to 1280 B.C.  $\pm$  120 years (Y-2343) at the Zimmerman site, illustrates a neat transition both in chipped stone tools and in types of soapstone bowls from the Frost Island to the Orient phase.

The Maurice River examples of Susquehanna Broad points and scraper just mentioned resemble the intermediate forms

described by Werner and may, in fact, represent a Dry Brook-like transition. Some of the fishtail points collected at Union Lake (Locus I) and at the Indian Head site also seem to reflect this intermediate development and would probably be classed as Dry Brook points by Werner. It follows, therefore that if these local specimens do, in fact, represent transitional forms, then the pure expressions of Susquehanna and Orient points are to be found elsewhere in southern New Jersey. This argument is bolstered by the discovery at the Indian Head and East Point sites of true Orient Fishtail points, which are also relatively common in local surface-derived collections. The Orient phase, first described by Ritchie (1959; 1965:163-77) on eastern Long Island, occupies much of northeastern Pennsylvania, southern New York and southern New England. The typical Orient inventory comprises the following items: fishtail points of the Orient type, and to a lesser extent Wading River points; steatite vessels of rounded form and with smoothed exteriors; unpitted and faceted hammers; atlatl weights of various forms; axes (rare), celts, and adzes; ovate and triangular knives and drills made from broken or modified points.

The Orient phase is perhaps best known for its effulgent mortuary ritualism- involving both individual, and communal burial in large deep pits, rich deposits of grave goods, and the postulated observance of periodic and elaborate magical rites (Ritchie 1965:173-77) - since it was solely on the basis of cemetery sites on eastern Long Island that the phase was

first defined (Ibid:163). In contrast, no convincing trace of a mortuary complex has been discerned in the Delaware Water Gap area (Kinsey 1972:359-60), notwithstanding Kraft's (1970:47-51) discoveries at the Miller Field site.

The discovery and excavation of several occupation sites on Long Island (Ritchie 1959:10-49; 1965:166-69) and in the upper Delaware Valley (Kinsey 1972:357-61) have elucidated some of the more mundane aspects of this culture, particularly the subsistence economy and food preferences. A hunting and gathering base is apparent with demonstrable stress on shellfish collecting on the coastal New York stations (Ritchie 1965: 164-65) and the presumed predominance of net fishing in the upper Delaware Valley (Kinsey 1972:360). Data on settlement patterns are still wanting.

A rather clear and consistent temporal framework has been established for the Orient phase, both in New York and the Tocks Island area. The C-14 dates obtained by Ritchie (1965: 164) on Long Island cover a period of 280 years, more or less, between 1043 B.C. and 763 B.C. Three dates of 1220 B.C.  $\pm$  100 years (Y-2589) (Kraft 1970:69), 1170 B.C.  $\pm$  120 years (Y-2339) (Kinsey and McNett 1972:222) and 810 B.C.  $\pm$  100 years (Y-2477) (Kinsey 1972a:190) in the upper Delaware Valley suggest the presence of Orient in nascent and mature form in this area prior to and contemporaneous with its recorded emergence on Long Island. Little is known about the demise of the Orient phase throughout its range, and its cultural descendents, such as they might be, have yet to be recognized.

Woodland: Woodland cultures are characterized by the use of pottery for containers and for smoking pipes; the innovation of "problematical objects" of distinctive forms such as birdstones and boatstones; and, a trend toward the discovery and exploitation of cultigens, leading ultimately to agriculture and concomitantly, the rise of settled village life. The tripartite division of Woodland into Early, Middle, and Late periods is largely based upon technological criteria, i.e., changes in pottery, pipe, and projectile point styles, accompanied by continually evolving and systematically related social activities either demonstrable or inferable from the archaeological record; viz., a progressive shift toward "settling in" on the one hand and a corresponding decline in the practice of an elaborate mortuary ritualism on the other. The seemingly grand transformations evinced during the 2600 year history of Woodland development from c. 1000 B.C. - A.D. 1600 were wrought gradually, by degrees, from an existing Archaic paradigm and reflect an evolving social and ecological milieu rather than a wholesale cultural transmutation.

Early Woodland: The Early Woodland is initiated in the greater Northeast by the appearance about 1000 B.C. of two distinct ceramic traditions, the first of which, typified by Vinette 1 pottery, appears to have arisen to the north or northwest of our area and to have entered it via New York State, thence spreading over the entire Atlantic Slope from New England to Maryland. The distinctive conoidal, grit-

or crushed rock-tempered Vinette 1 vessels are distinguished by their coiled construction and complete exterior and interior cord-marking (Ritchie and MacNeish 1949:100). The use of Vinette 1 pottery cross cuts several cultural manifestations throughout its range during a span of c. six hundred years from 1000 B.C. - 400 B.C. (Ritchie 1969:85-86).

The second ceramic tradition originates in the Chesapeake Bay region, also about 1000 B.C. (Cf. Gardner and McNett 1971:43), with the introduction of flat-bottom, steatite-tempered Marcey Creek vessels, which, as has long been known, represent ceramic copies of soapstone kettles (Holmes 1903:157; Hawkes and Linton 1916:77; Manson 1948:225). The Marcey Creek Plain type, also known as Koens-Crispin Plain (McCann 1950:316), is but one of many related styles of Early Woodland flat-bottom pottery in the Mid-Atlantic region. The Seldon Island cord-marked (Smith 1971:41), Ware Plain (McCann 1950:316), and Heislerville Corded (pp. 74-78) pottery represent localized variations in temper and exterior surface treatment of the Marcey Creek model.

Marcey Creek Plain and cognate wares enjoy an expansive distribution emanating from the Chesapeake Bay heartland. They occur commonly in central and southern New Jersey (Cross 1941:60,65, 88; McCann 1950; Kier and Calverly 1957:86-88), north to northeastern Pennsylvania (McCann 1962:53-55), northwestern New Jersey (Kraft 1970:116-17) and into coastal New York (Smith 1950:135-36, 165; Lopez 1957:25-26).

In the Middle Atlantic States the Vinette 1 and Marcey

Creek ceramic traditions apparently merged some time after 1000 B.C., resulting in a number of hybrid combinations such as the flat-bottom, shell-tempered and interior/exterior cord-marked Cadwalader Corded ware or Modified Vinette (Lopez 1957:25) to cite but two examples. Looking further afield, the rise of such types as Half Moon Cord-Marked (Fetzer and Mayer-Oakes 1951:18-20), Fayette Thick (Webb and Baby 1957:20), the Juniata Thick series (Huner, et.al. 1967:468-70), and others as summarized in Table 3 may be directly related to this merger. This assumption cannot be adequately assessed at this time and might be properly the object of further inquiry.

In the coastal zone of the Middle Atlantic region the as yet dimly perceived evolution of ceramic series seems to emanate from the Marcey Creek - Vinette 1 amalgamation as noted above, and then to proceed into the transitional development of more or less unspecialized conoidal vessels. Some refinement in form, consisting of rounding the body and slight constriction of the neck, occurs in later stages of development, but the culture-specific elaborations in form and decoration that characterize the later cultures in the piedmont are generally not in evidence on the coastal plain.

Kinsey (1972:360-61) advances the hypothesis that the ultimate source of the cord-marked ceramic series in the Northeast might lie solely with the Marcey Creek tradition rather than with Vinette 1 or a Marcey Creek - Vinette 1 fusion. Kinsey's rather unconvincing argument is based upon stratigraphic evidence from the Faucett site where Exterior

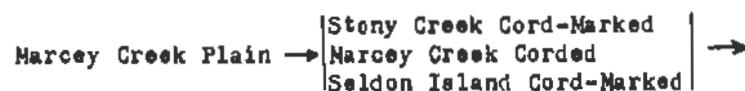
-TABLE 3-

## COMPARISON OF EARLY WOODLAND CERAMIC TYPES

POTTERY TYPES	TEMPER	NEG	SURFACE		FORM	
	Steatite Crushed rock Limestone Grit/Sand Shell	Modeling Colling	EXT. INT.		Flat Base Conoidal Lugs Heels	
			Corded Smooth	Corded Smooth		
Marcey Creek Plain	+ - - -	+ -	- +	- +	+ - + +	
Seldon Island	+ - - -	+ -	+ -	- +	+ ? + +	
Fayette Thick	- + - + -	+ -	- +	- +	+ - + ?	
Half Moon Cordmarked	- + + - -	+ -	+ -	+ +	+ - + ?	
Bare Island Cordmarked	+ - - - -	? ?	+ -	+ -	? ? ? ?	
Vinette 1	- + - - -	- +	+ -	+ -	- + - -	
Modified Vinette	- + ? ? ?	- +	+ -	+ +	+ + + ?	
Cadwalader Corded	- - - - +	+ +	+ -	+ -	+ ? ? ?	
Heislerville Corded	- + - - -	- +	+ -	- +	? ? ? ?	
Ware Plain	- + + - -	+ -	- +	- +	+ - + +	
McKees Rocks Plain	- + - - -	+ -	- +	- +	+ - - -	
Juniata Thick Corded	- - + - -	- +	+ -	+ -	? ? - -	
Juniata Thick Smooth	- - + - -	- +	+ -	- +	? ? - -	
Juniata Thick Plain	- - + - -	- +	- +	- +	? ? - -	

This table is intended to indicate the presence (+) or absence (-) of specific traits common among Early Woodland ceramics. The chart shows how certain attributes of temper, manufacture, surface treatment, and form have been recombined in various related Early Woodland pottery types.

Corded/Interior Smoothed pottery was found to occur somewhat deeper than Vinette 1. From this exiguous data Kinsey postulates an hypothetical genetic sequence of pottery types beginning with Marcey Creek Plain and terminating with Vinette 1 and later types. His conjectural sequence is as follows:



Exterior Corded/Interior Smoothed  $\rightarrow$  Vinette 1  $\rightarrow$  Later types

This reconstruction enjoys no documented chronological or technological basis. The intermediate types in the series remain, for the most part, undated either by C-14 or by stratigraphic methods, and the one dated type - Exterior Corded/Interior Smoothed - falls well within the established time span for Vinette 1 (Kinsey 1972:455). Moreover, since both Marcey Creek Plain and Vinette 1 have been accorded nearly simultaneous appearance about 1000 B.C. as determined by radiocarbon analysis, it is hard to imagine how either form could have given rise to the other. The totally different vessel forms of Marcey Creek Plain and Vinette 1 wares also strongly indicate diverse historical origins and developments. It seems likely that the position of Vinette 1 in the Faucett site sequence represents a survival, postdating the appearance of the Exterior Corded/Interior Smoothed pottery.

In the lower Maurice River drainage the early development of ceramics can be traced to a Marcey Creek - Vinette 1 coalescence at the Cadwalader and Cadwalader Annex sites



where our excavations have allowed the definition of the Cadwalader complex, the first clear expression of an Early Woodland culture in southern New Jersey, and, indeed, in much of the Middle Atlantic region. The Cadwalader complex as established by our Maurice River data comprises the following diagnostic traits: Cadwalader Corded and Heislerville Corded pottery, side-notched points, hoe-shaped choppers and scrapers, the triangular end scraper, utilized flakes, and scrapers fashioned from fragmentary valves of the hard shell clam. In the rough and ground stone categories are notched netsinkers, pebble whetstones, the hammer or abrading stone, and the probable use of the grooved axe. From bone and antler were manufactured awls, needles, spatulas, flaking batons, and conical projectile points.

The subsistence of the Cadwalader people was closely linked to the exploitation of the river, bay, and forest. Oysters formed a dietary staple as evidenced by the abundance of discarded valves and the presence of a probable earth oven at the Cadwalader site. Deer, turtles, and other creatures were also heavily relied upon. Fish, as noted earlier, seem to have been of relatively minor importance. Dogs were known, if only as camp scavengers, and may have been hunting companions though not accorded special post-mortem treatment as witnessed by the presence of at least one dog in the midden deposit at the Cadwalader site.

No evidence of shelter or of palpably associated human burial survived, and the testimony to the possible use of

fire-, storage-, and refuse pits at East Point during the Early Woodland times is largely conjectural. The social organization probably stressed mobility and the seasonal exploitation of the resources of the forest, river and bay.

A single radiocarbon assay on a refuse bone sample from the Cadwalader site yielded the unsatisfactory date of 940 A.D.  $\pm$  95 years (I-6731). As noted before this determination, which postdates the estimated appearance of the Cadwalader complex by some 1700 years, cannot be assigned to a later occupation, and the magnitude of the error eliminates the possibility of invoking conservative technological lag as a plausible explanation. Just how this discrepancy is to be resolved remains to be seen.

The Cadwalader complex embodies a cultural tradition - still unnamed and only imperfectly outlined - incorporating technological and adaptive elements, but in the absence of similarly defined complexes elsewhere in the Mid-Atlantic region about this time, the possibility of designating a discrete Cadwalader phase cannot be presently advanced.

The derivation or origin of some of the Cadwalader complex traits, especially the side-notched points, remains somewhat enigmatic. Points of this general style have been consistently recovered throughout the Northeast as minority forms from what are essentially Early Woodland contexts, though not always so designated. They have been recorded at the Koens-Crispin site, near Medford, New Jersey (Hawkes and

Linton 1916:77) and at various other New Jersey sites (Cross 1941). They also occur in Early Woodland rockshelters in south-central Pennsylvania (Kinsey 1958:3) and northeastern West Virginia (Dragoo 1959:147-87). In all these instances the associations of the "generalized side-notched points" have been with sherds of Marcey Creek- or Vinette 1-like pottery. The points seem to enjoy an Archaic ancestry as a minority type in the Bare Island complex (Kinsey 1959:129) of the lower Susquehanna Valley as well as in the Late Archaic Sylvan Side-Notched type of the Hudson Valley (Ritchie, personal communication) and the possibly related Macpherson points from the Delaware Water Gap area (Kinsey 1972:411-12). It seems not unlikely that the type, if it may be considered as such, survived into Middle Woodland times along with the associated use of Vinette 1 pottery as evinced in the Bushkill complex of the upper Delaware Valley (Kinsey 1972:364-69; and, personal communication) and also at the Pratt and Peterson sites on Martha's Vineyard, Massachusetts, where the most recent date for the related occupation is thought to be 520 B.C.  $\pm$  120 years (Y-1531) (Ritchie 1969:85). Presently, the derivation of the Cadwalader side-notched points from an expanding-stemmed variety of the Bare Island type, such as the Clagett style (Stephenson and Ferguson 1963:142-43) seems the simplest and most acceptable explanation pending final resolution of the patent chronological and cultural confusion surrounding the origin of these rather nondescript points.

What other elements may in time be added to the trait list for the Cadwalader complex also remains uncertain. It is possible that Rossville points, for example, may be related to this manifestation although this does not presently seem to be the case. In the event that such an attribution could be effected then the link between the Cadwalader complex and the Lagoon (Ritchie 1969:224-25) and the Bushkill complexes (Kinsey 1972:364-69) will have been strengthened.

The clear-cut expressions of other Early Woodland cultures in the Middle Atlantic States are few, the explications of most presumed Early Woodland components being clouded by the lack of stratigraphy and/or unsatisfactory field procedure (Schmitt 1952:60; Cross 1956:174-79; Stephenson and Ferguson 1963:179-85). One of the better known manifestations, doubtless owing to its exotic and spectacular nature, is the Middlesex phase of the Adena tradition which is recorded on the East Coast from Maryland to New England (Ritchie and Dragoo 1960; Thomas 1970). The Adena presence on the Atlantic shore - hallmarked by the discovery of distinctive Adena points, leaf-shaped blades of exotic flints, blocked-end tubular pipes, stone gorgets of a variety of shapes, and various copper gorgets and beads - poses several weighty problems beyond the scope of this report. The intention here is to add some heretofore unrecorded information to the literature concerning the distribution of Adena or related manifestations in the southern New Jersey area.

A small supposed Middlesex cemetery was dug out of a sandy knoll along the south shore of the Great Egg Harbor Bay, near Beesley's Point, New Jersey by Robert Werry of Vineland,

New Jersey in 1938-39. The site was mentioned by Cross (1941:228), but the significance or identity of the 24 burials and the associated artifacts including blocked-end tubes of Ohio fireclay, numerous rolled copper beads, cache blades of exotic stone, and pottery, was either overlooked or disregarded at the time (Kier, personal communication). Since its discovery the site has been obliterated by house construction, and the collection from it has been broken into several private holdings. Unhappily, the secrets of this rare and important site have, it seems, been irrevocably lost.

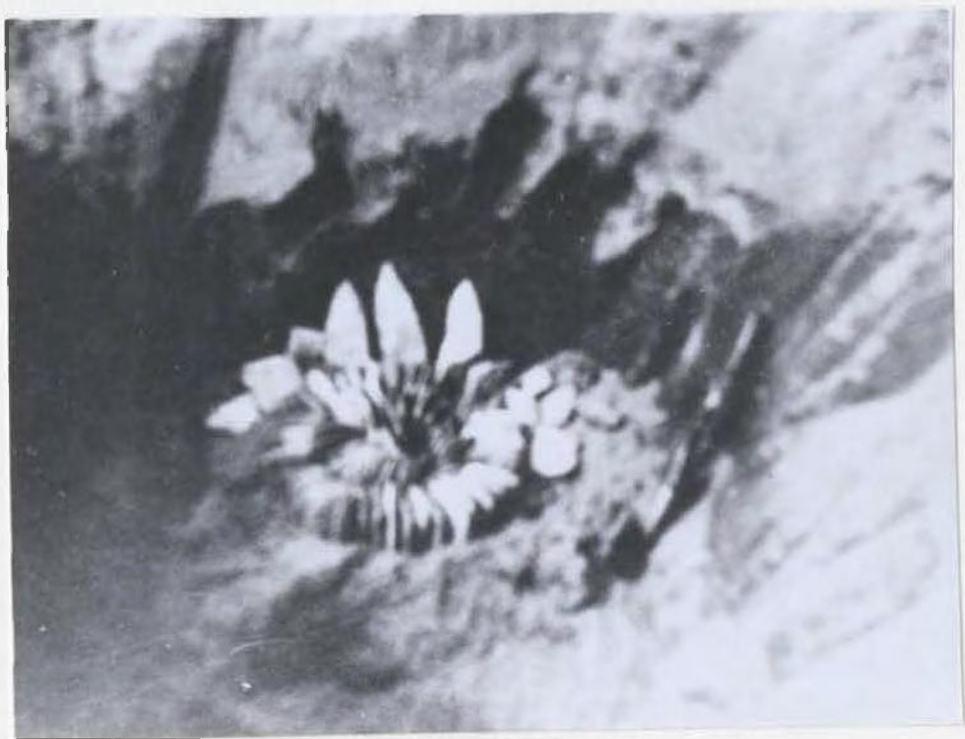
Another evidently related feature was unearthed many years ago near Port Elizabeth, New Jersey. Herbert W. Vanaman, of Port Elizabeth, reported in conversation the discovery in 1927 of a cache of 84 leaf-shaped blades of Flint Ridge, Ohio chalcedony near his home in what was then a wooded lot about 200 yards east of the Maurice River (Plate 44). The blades - which I would class as Robbins blades (Cf. Dragoo 1963:180) - had been carefully set on edge in two concentric circles and buried at a depth of c. two feet. No other objects were found in the cache, but Mr. Vanaman has in his possession a number of locally collected Adena or Robbins blades of like material. A few other Adena points have turned up in local collections, but the original contexts or circumstances of discovery of these relics are obscure.

Much better documented is the famous and very important Rosenkrans Ferry site in Sussex County, New Jersey where a spectacular Middlesex cemetery harbored 13 flexed, secondary,

- PLATE 44 -

CACHE OF ROBBINS BLADES IN SITU ON  
PROPERTY OF HERBERT W. VANAMAN, 1927.

(Courtesy of Herbert W. Vanaman)



and cremated burials. Associated grave offerings included blocked-end tubes; large stemmed and side-notched points of Onondaga chert; slate gorgets; pendants; mineral cones; numerous beads, an awl, a celt, and a boatstone, all of copper; Marginella and cylindrical shell beads; plaited fabric; red ochre; and, Vinette 1 pottery (Carpenter 1950:299-303; Ritchie and Dragoo 1960:60, 72-80, Figs. 1,2). Ritchie (1965:203) obtained the only radiocarbon date for this site from charcoal exhumed from an in situ cremation. This date at 610 B.C.  $\pm$  120 years (Y-1384) is somewhat earlier than the few determinations available from related sites in Maryland and Delaware which range from 360 B.C. to A.D. 320 if the standard deviations are disregarded (Kinsey 1972:395).

Also suggestive of Early Woodland connections are a number of stone and ceramic tubular, cigar-shaped, and obtuse-angle smoking pipes from the Maurice River drainage and nearby areas of Cumberland County (Philhower 1934:8-14). As is often the case with surface-derived antiquities the provenience and context of these pipes has not been precisely noted, and while admitting their lack of diagnostic value, they would seem to signal some connection, if only temporal, with the Early Woodland Meadowood and/or Middlesex phases (Ritchie 1965:193,204) of New York State or the Middle Woodland Kipp Island phase in the same state (Ibid:228).

Middle Woodland: The quest for Middle Woodland material in the Maurice River tidewater area has not been well rewarded. The inability to identify Middle Woodland components here



arises in part from the general absence in this area of the highly distinctive and diagnostic "Hopewellian" derived zoned ceramics which probably reached their most effulgent expression on the East Coast at the Abbott Farm (Cross 1956: 144-48). There are no recorded instances of the occurrence in the Maurice River drainage of such types as Abbott Zoned Incised or Abbott Zoned Dentate although a small elaborately stamped or incised globular vessel from the Indian Head site, now in the George Woodruff collection (Figure 1 ), hints of a Middle Woodland origin as do a fragmentary platform pipe from this site and another from the Horseshoe Bend site along Menantico Creek. The infrequent discovery here of platform pipes as well as the sparse occurrence of Jack's Reef Corner-Notched and Pentagonal points (Cf. Ritchie 1961:26-28) suggests an affinity to the Kipp Island phase of New York State (Ritchie 1965:232-53) whose Middle Atlantic counterpart, the Webb phase (Thomas and Warren 1970) has been isolated at the Island Field site near South Bowers, Delaware, less than 20 miles across the Delaware Bay from the mouth of the Maurice River. At any rate, such expressions are rare and constitute inferential rather than conclusive evidence of a Middle Woodland presence here.

The net-impressed ceramics which characterize many Middle Woodland horizons along the Atlantic seaboard from the Chesapeake Bay to southern New York State (Smith 1950:196; Evans 1955:43; Cross 1956:139-40; Stephenson and Ferguson 1963:107-08; Funk 1968; Kaeser 1968; Kinsey 1972:455-56) seem to have

played a negligible role in the ceramic development of southern New Jersey. The near dearth of net-impressed ware in the Maurice River tidewater area is a little puzzling but correlates well with the observed paucity of Fox Creek and other Middle Woodland point types (Ritchie 1961:51-52; Funk 1968).

While the bulk of the ceramic assemblages from the large pottery producing stations such as Indian Head and Horseshoe Bend can be awkwardly grouped into the pre-existing Early and Late Woodland types, a large portion falls into an intermediate position with respect to size and kinds of temper, surface treatment and form, and to some extent, according to less tangible parameters, such as degree of refinement or technical expertise. It is precisely in this taxonomic abyss that much of the Middle Woodland pottery of southern New Jersey is apparently hidden. In the absence of hard and fast associations and in dealing with fragmentary, undecorated sherds the archaeologist is often hard put to distinguish one type from another. The conservative adherence to familiar forms and media is so confusing that pottery alone is often an insufficient criterion for making the finer distinctions between related cultural complexes, even on the local level. It is therefore desirable to know, or to seek to know, the other associated elements of culturally determined congeries so that distinct composites rather than isolated traits can be compared. It is in light of this desideratum that more rigidly controlled stratigraphic work is urgently needed.

Late Woodland: The Late Woodland in the Maurice River area is somewhat better known as a result of our excavations on the stratified Fralinger site where a discrete assemblage of late prehistoric-to-contact relics were collected. Based on the excavation of Stratum 1 at the Fralinger site the following elements are considered as diagnostic of the Late Woodland Fralinger complex: Riggins Fabric-Impressed and Plain, Union Lake Corded, and Fralinger Corded pottery; ceramic smoking pipes of two styles- probably of the elbow- or obtuse-angle types-; triangular points; triangular end- and ovate side scrapers; utilized flakes; whetstones; the graphite paintstone; and a few associated historic objects - a plain button and various unidentified scraps of iron and copper - undoubtedly grafted onto the complex shortly before its extirpation.

The clear association of historic and aboriginal artifacts suggests the late survival of the Indian population in this area, also documented by McCann (1957), probably until the late 17th or early 18th centuries.

Data on the subsistence economy of the Fralinger people are meager, being limited to the discovery of a few hickory nuts, scattered mollusc shells, and refuse bone throughout Stratum 1 and by inference from the presence of small triangular projectile points. No evidence of horticulture was discovered, but it is likely that plant domestication or cultivation was practiced at least on a modest scale by this time.

Housing and settlement patterns await elucidation. Presently the only intimation of housing stems from the discovery

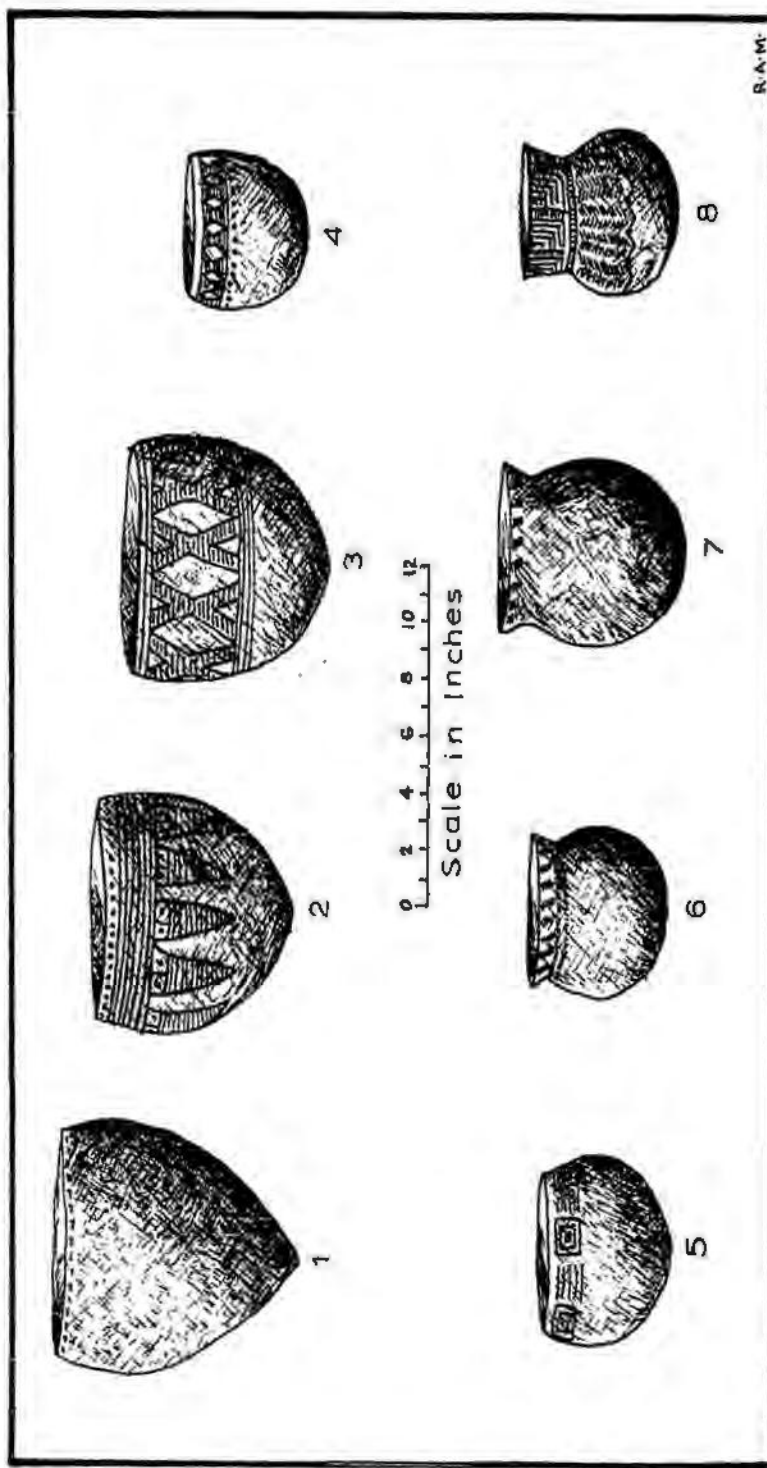
of a possible trampled living floor in Stratum 1A. The occurrence of house patterns and/or palisaded villages have never been documented in southern New Jersey, owing more to the loose, sandy nature of the soil and to modern disturbances than to the absence of structures in Late Woodland times.

The inclusion of four distinct pottery types within the Fralinger complex augurs for its ultimate subdivision into a number of phases built around these pottery types. The more or less isolated appearance of Riggins Fabric-Impressed ceramics in the humus at the Cadwalader Annex site, on surface sites in this drainage, and elsewhere in southern New Jersey indicates that the Riggins ware will one day be established as the nucleus of one such phase. The same can be said for the Fralinger Corded and Union Lake Corded pottery types, but the intricacies of their ancestry must first be unraveled.

It seems likely that all of these ceramic wares will ultimately be traced back into Middle Woodland times. A brief examination of the Riggins Fabric-Impressed vessels in the George Woodruff collection reveals a greater variation in form and decoration than would be expected in what is ordinarily regarded as a contemporaneous series (Figure 1). Vessel form varies from conoidal to globular. Many of the vessels resemble those of the Point Peninsula or early Owasco series of New York State (Ritchie and MacNeish 1949), while the decoration exhibits considerable differentiation both in motif and technique, ranging from the characteristic Late Woodland single cord impression or simple linear incising (Figure 1, No. 1, 4-7) to

- FIGURE 1 -

VARIETIES OF RIGGINS FABRIC-IMPRESSED POTTERY



R.A.M.

elaborate zoned or filled geometric patterns, often covering half to three quarters of the body (Figure 1, No. 2-3, 8). Such motifs and their careful execution, while infrequent, are reminiscent of the refined Middle Woodland "Hopewellian" pottery already alluded to (Cross 1956:144-47). The precursors of the Fralinger Corded and Union Lake Corded types are even more obscure owing to their extreme functional and mundane appearance. As work progresses and the ceramic sequence in this area is given fuller exegesis, the derivation of these types from earlier wares should be amply borne out.

At this time the closest affinities of the Fralinger complex and allied manifestations in southern New Jersey seem to lie with the cultures along the Atlantic coast from the Chesapeake Bay to New England. It is not surprising to find the greatest correlation with those areas that are most well known archaeologically, i.e., coastal New York and New England, even though equally as strong or stronger ties might be expected with the Late Woodland cultures of the Delmarva peninsula or around the shores of Chesapeake Bay.

To the north, some connection with the Sebonac, Bowmans Brook, or Clasons Point phases in New York State (Ritchie 1965: 265-71; Smith 1950:120-23, 133-34) is suspected as well as with Ritchie's (1969:227-28) nameless Late Woodland phases in Massachusetts. Likewise, relationships with the few, poorly understood, Late Woodland cultures of the Mid-Atlantic region (Omwake and Stewart 1963; Stephenson and Ferguson 1963:190-98) are apparent though not susceptible to in-depth analysis.

Unfortunately, it must be noted that our slender data are insufficient to permit of any but the vaguest demonstration of parallel development over this vast area, and considerable critical research will be needed to clarify the rather nebulous affiliations already perceived.

In New Jersey and the Middle Atlantic States generally, fuller explication of the prehistoric cultural developments, the relationship between aboriginal groups, and the relative chronology will depend upon the discovery and careful exploration of single-component and/or stratified sites, either small coastal stations as at East Point or deep alluvial sites above the fall line of the major rivers (Cf. Coe 1964:9-13).

It can be seen that throughout time the far-flung networks of travel, trade, and communication in our area were based upon the natural watercourses, both paralleling the ocean behind barrier beaches and penetrating the upland regions to the north and west. The valleys of the Hudson, Delaware and Susquehanna Rivers along with the intercoastal waterways served as north-south diffusion routes while movement across the Appalachian range was facilitated by the dissection of the highlands by the headwaters of the Susquehanna, Potomac and James Rivers. Along the 315 mile stretch between Roanoke, Virginia and Coudersport, Pennsylvania these rivers transect the Appalachian ridge at no fewer than seven loci, from which easy access to the Ohio drainage, and hence points beyond, can be gained. It is at these spots and along these rivers that traces of cul-



tural continuities through time may be expected to occur, and it is in these areas that systematic investigations for stratified sites and closed components should be begun.

















Correlation of archaeological and ethnohistorically known groups in southern New Jersey is a desirable goal but, unfortunately, one that has been fraught with considerable difficulties. All efforts to this end have been rewarded with only partial success (Skinner 1909; Weslager 1954; Newcomb 1956; McCann 1957; Dunlap and Weslager 1958) primarily because the early 17th century source material is sketchy or conflicting. There was little agreement among the early chroniclers and cartographers - Evelyn, Lindstrom, Vingboons, and Van Der Donck - as to the placement of the various small, dispersed and largely autonomous Delawaran groups who were, in any case, geographically and socially dislocated shortly after the advent of European colonization (Newcomb 1956:5-9). Nor are any unequivocally documented historic Delaware villages known in this area (McCann 1957:1). Thus, for these reasons, and unless new, reliable data can be brought to bear, any further attempt to effect such a correlation seems at the outset to be doomed to failure.

- FIGURE 2 -

TENTATIVE CULTURAL SEQUENCE AND CHRONOLOGY

# MAURICE RIVER TIDEWATER AREA

## TENTATIVE CULTURAL SEQUENCE AND CHRONOLOGY

CULTURE		COMPONENTS	TECHNOLOGICAL	TRADITIONS
WOODLAND	Late	Indian Head Union Lake I-IV Fralinger (Stratum 1) Cadwalader Annex	1600  Conoidal Pots	 Triangular Points
	Middle	Indian Head (?) Horseshoe Bend (?)	500 ? A.D. B.C.	
	Early	Indian Head Cadwalader Cadwalader Annex East Point	1000 Marcey Creek / Vinette Fusion  Soapstone Pots	 Orient  Dry Brook  Susquehanna  Perkiomen  Lehigh
	Late	Indian Head Union Lake I-IV Fralinger (Stratum 2) Cadwalader Annex East Point	3000 Vosburg	 Bare Island, Etc.  ?
	Middle	Indian Head Union Lake I & IV	4000 Otter Cr. Morrow Mt. I-II	   Stanly  Kanawha Le Croy  Kirk 
ARCHAIC	Early	Indian Head	7000	

### CONCLUSIONS

The Maurice River tidewater area has yielded abundant evidence of an apparently long and complex prehistory. The discovery of several distinctive classes of artifacts indicated that the cultural development in this area could be traced through a progression of distinct phases or complexes that could be isolated both in culture and chronology. By concentrating on closed or stratified components it was hoped that such definition could be, at least partially, attained. In fact our excavations at the Fralinger, Cadwalader and Cadwalader Annex sites allow for the first time the segregation of several discrete assemblages and the definition of two hitherto unrecognized cultural complexes. In particular, the delineation of the Late Woodland Fralinger complex, the Early Woodland Cadwalader complex and an early Susquehanna tradition component in Stratum 2 at the Fralinger site provides the first hint of order in the chaotic state of prehistory of southern New Jersey.

These units, while only imperfectly defined, provide the basic structure for the cultural sequence and chronology here as it is presently understood. In the absence of other reliable data from stratified contexts the gaps in this schedule are filled by comparison with documented regional sequences elsewhere. The resulting composite mirrors with reasonable accuracy, though not inviolably, the cultural succession in this area beginning at least several millennia before the

Christian era. The cultural sequence as currently pictured is illustrated in Figure 2.

Paleo-Indian, Early to Middle Archaic, and Middle Wood-land manifestations are very dimly perceived, but excepting these, the envisioned progression is essentially complete and adequately accounts for the data at hand. While the scheme is far from ideal, it is nonetheless defensible in its present form. It is expected that the sequence will be modified to accomodate new data as they are brought to light.

The cultural sequence and chronology in the lower Maurice River drainage shows a clear and consistent parallelism with respect to the recognizable events in the prehistory of the adjacent geographical areas. Indeed the whole Middle Atlantic seaboard from North Carolina to New England seems to have functioned as an aboriginal culture province (Cf. Stephenson and Ferguson 1963:200-205). Apparently both internal development and foreign influence are responsible for the perceivable archaeological remains.

The relatively rapid transmission of ideas and artifacts and the possible movement of people within this vast region, as well as to and from points beyond, was facilitated by the strategic location of the several waterways that penetrate the interior highlands. This geographical peculiarity coupled with generally similar ecological conditions explains the regional appearance of distinctive cultural horizons at specific and relatively restricted time levels.

While the existence of a coastal culture as a discrete

entity has been effectively denied (Ritchie 1969:233), the aboriginal cultures on the coastal plain clearly bear the stamp of provincialism. This is especially evident on the later Woodland sites in the Delaware Bay region where, for example, the development of ceramic technology bespeaks a remarkable cultural stability and continuity. The lower Delaware Valley was, as Gruber (correspondence, February 17, 1971) affirms, "a kind of a backwash area where conservatism persisted long after the time described by its typology".

This investigation has resolved some of the long standing problems in southern New Jersey archaeology. Inevitably, others could not be unraveled. The need to define many traditions and their included phases remains as a primary research objective and additional accuracy in the regional correlation of specific phases or complexes is greatly to be desired.

The chronology has proven thought to be a weak point in the analysis. Our success in dating the Susquehanna tradition component in Stratum 2 at the Fralinger site is offset by the inexplicable and excessive discrepancy in determining the age of the Early Woodland Cadwalader complex. This failure is the source of much disappointment and consternation. It is apparent that the present relative chronology must be replaced by a sound radiocarbon-based framework, but this unconsummated task will require considerable critical work in the future.

With the exception of the Cadwalader material, data directly relating to subsistence patterns and ecological adaptation are sadly lacking. Also, evidence regarding housing, village structure and settlement patterns are virtually nonexistent. Burial customs, trade and travel, social organization and the relationship between archaeological cultures and ethnohistorically described groups in this area await elucidation. In short nearly all of the non-material characteristics of the sundry occupants of the area are beyond the pale of our present understanding. These and the various specific problems already alluded to in the text would bear additional careful examination.

Thus, it might be legitimately argued that the value of this study lies not so much in its modest contribution to knowledge as in its clarification of what we have yet to learn.

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